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Technology for Effective Japanese Learning: Positive Influence of Using Technology for American College Students

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TECHNOLOGY FOR EFFECTIVE JAPANESE LEARNING: POSITIVE INFLUENCE OF USING TECHNOLOGY FOR AMERICAN COLLEGE STUDENTS

by

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Dedication

This work is dedicated to my parents

Tokuda, Shuichi and Tokuda, Yasuyo

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Abstract

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The purpose of this study was to examine how college students can be supported in learning Japanese and to be exposed to culture by utilizing technological tools (computers, smartphones, and tablets). This study employed an online survey which was developed to elicit findings of five research focuses: college students' comfort levels and their perceptions about using technological devices as learning tools in terms of invested times and changes in their orientation in learning language and culture; kinds of devices, purposes, places, and reasons for their use of technology to learn Japanese; the support obtained through the use of technology to master the five goals of the National Standards; the relationship between the self-assessed mastery levels of the five goals of the National Standards and the use of technology; and students' motivations for using technology focusing on three areas– language learning, cultural acquisition, and social networking. One hundred seventy-eight college students, studying Japanese at the University of Memphis, participated in the study. The Statistical Package for the Social Science was used to analyze the data to address the research questions. The results indicated most students feel comfortable using technology to learn Japanese. Students enjoyed using technology and perceived it as tools to enhance their learning. Technology allows anytime/ anywhere learning exceeding the boundaries of learning environments (homes and classrooms). Students' self-assessed mastery levels of the five goals of the National Standards revealed that the use of technology supported them in mastering proposed outcomes (Comparisons and Communities). The relationship between the National Standards and the four metrics of the use of technology were examined, and

correlations were found between the mean of each of the National Standards and the four metrics of technology use. Students' greatest motivation and purpose for using technology were related to language learning, cultural acquisition, and social networking.

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Chapter 1

Introduction

In the United States, there have been great changes in the past 20 years. The U.S. is getting bigger, older, and racially more diverse (Nasser & Overberg, 2011). Sine 1990, Hispanic and Asian populations have been growing at a rapid rate. One out of seven marriages are between different racial or ethnical backgrounds, and the number of Americans who claim more than two races is increasing (Nasser & Overberg, 2011). Another significant change has been created by new innovations relating to technologies, and people's lives, including styles of communication, of working, and of learning, have been changing as well (Jalali, Mahmoodi, & Tehran, 2009). To deal with such changes, the Internet is expanding quickly throughout the world, and its potential is still being explored. Alvin Toffler, the well known futurist, describes societal changes by three waves: the first wave as the agricultural age, the second wave as the industrial age, and the third age as the information age (Jalali et al., 2009; Toffler, 1989). Jalali et al. (2009) describe the fourth wave as virtual age.

Along with these societal changes, additional demands for new intellectual skills such as critical thinking, problem solving, collaboration, communication, and information literacy have been added (Partnership for 21st century skills, 2008). These skills are necessary for people in the 21st century to succeed. People are expected to have numerous skills to be able to deal with jobs in multiple fields (Kay, 2010). People who were born in the later years of the baby boom held on average 10.8 jobs between ages 18 to 42. Facing this reality, students should be prepared themselves for surviving in an era with multiple expectations. In order to prepare American college students for a competitive society immersed in a rapid expansion of technology, educators need to educate and to train students to be well prepared to join

an international workforce (Kay, 2010). One of the skills that is beneficial for students to deal with jobs in multiple fields is foreign language proficiency (Koning, 2009a, 2009b, 2009c, 2009d, 2009e, 2010a, 2010b; Partnership for 21st century skills, 2008). Students with experiences in foreign language learning have sensitivity to cultural differences, flexibility to new and different ideas, and adaptability to changes (Berdan & Berdan, 2014; Partnership for 21st century skills, 2008). Students wanting to work in an international markets become more desirable with these qualities. Foreign language skills open doors for students in different fields, such as business and industry, international development, national security, travel, tourism, hospitality, legal interpreting, health care, and emergency response and law enforcement (Berdan & Berdan, 2014; Koning, 2009a, 2009b, 2009c, 2009d, 2009e, 2010a, 2010b).

The Modern Language Association (2011, 2012) claimed the importance of foreign language education for American students, and has supported foreign language education for more than a century. The rate of monolinguals in the United States is high. More than 80% of people do not know any other languages besides English, while 50% of people in Europe, over age 15, are able to carry a conversation in their second language (Modern Language Association, 2011). Some countries in the European Union provide students opportunities to learn two nonnative languages, and students in Canada are educated in more than one language. The mindset of Americans on global education is far below other countries, and it is critical to nurture students to have a multicultural outlook in today's increasing global world marketplace. In addition, the budget for foreign language education has been decreasing (Berdan & Berdan, 2014; Modern Language Association, 2012). In order to support American students to become global citizens, foreign language education and intercultural learning should be accelerated.

The national competitiveness is defined as "the set of institutions, policies, and factors that determine the level of productivity of a country" (Schwab, 2011, p.4), and world competitiveness is determined based on 12 pillars – institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation. Overall, Japan is ranked the ninth most competitive country in the world (Schwab, 2011), but the third largest economy (Bigda, 2013). As for its innovation and sophistication pillars, Japan is ranked third, and Japan is known for its high-value-added goods and services. Japan is considered to be one of the leading countries in terms of economics and technology that is successfully educating and training its citizens through the use of technology as well as its own unique education systems (Izumi-Taylor, 2008).

When looking at the business relationship between the United States and other countries, Japan is the second largest foreign investor nation in the United States (CBI, 2012). As of yearend 2011, the invested amount by Japan was $289 billion, preceded by the United Kingdom ($442 billion), and followed by the Netherlands ($240 billion), Germany ($216 billion), and Switzerland ($212 billion). The contributions that foreign companies bring to the U.S. are beneficial. They not only increase the employment opportunities, but also provide high-paying jobs, which are up to 30% higher than others, for the nation (U.S. Department of Commerce, 2011). The U.S. subsidiaries of Japanese companies have created the highest manufacturing industry employment, 292,700 employments, in the U.S (U.S. Department of Commerce, 2011).

Japan's growing power is also congruent with the result of the ranking of the most useful languages for business around the world (Bloomberg Rankings, 2011). To create this ranking, 25 languages with the highest number of native speakers were first identified, and then narrowed down to 11 languages, which are the part of the official languages of the group of 20 finance ministers and central bank governors (G20). Based on the result, Japanese is considered as the seventh most useful language, preceded by Mandarin Chinese, French, Arabic, Spanish, Russian, and Portuguese.

Locally, in Tennessee, mastering Japanese language and cultural skills has become especially useful for students (Tennessee Department of Economy and Community Development, 2012; Tennessee Government, 2010). According to a report by the Tennessee Department of Economy and Community Development (2012), for more than 30 years the Japanese business community has had a positive influence on Tennessee's economy, and Japan is the largest foreign investor nation for Tennessee. There are 133 Japanese-owned businesses in Tennessee, and these companies have created almost 33,000 good paying jobs for Tennesseans. The capital investments are more than $14 billion. Also, Japan purchases over $1 billion of products and services in Tennessee, and it is the fourth largest customer nation. In addition, over the past three years, Tennessee has been ranked the number one state in the nation for automotive manufacturing, and one of the largest companies is Nissan (Tennessee Government, 2012).

The world is getting smaller and more interconnected because of the globalization, and students with multiple language and cultural skills have broader opportunities to succeed in this century (Koning, 2010a). In preparing Americans for globalization, college students are able to enhance their competitiveness by studying

Japanese. It is considered one of the important languages in global and Asian contexts, and various advantages are provided for students who aim to work in the global workplace (Bloomberg Rankings, 2011; Japanese National Standards Task Force, 1998, 2006). Because of the growth of its importance, the number of students of the Japanese language has been increasing (Japan Foundation, 2012). The Japan Foundation (2012) has conducted survey research to investigate the number of institutions, teachers, and students of Japanese in the world a total of ten times since 1979. Based on the results, the number of institutions increased by 14 times over the past 33 years, the number of teachers has increased by 15.6 times, and the number of students increased by 31.3 times (Japan Foundation, 2012). As for the research in 2012, there are approximately 3.99 million students who study Japanese in 136 countries worldwide. Japanese education abroad has been constantly expanding over 33 years. East Asia accounted for by far the highest percentages of numbers of institutions, teachers, and students by region, followed by Southeast Asia (Japan Foundation, 2012). Each of the other regions including North America accounted for approximately 10% or less.

Traditionally, Japanese was studied by limited number of people such as academic and diplomatic specialists in the United States (Japanese National Standards Task Force, 1998, 2006), but now Japanese is ranked as the sixth most popular language which is studied in four-year college programs (Modern Language Association, 2010). Mastering the Japanese language and its culture is no longer valuable only to students who will be experts of Japan, but also to students in a variety of fields (Berdan & Berdan, 2014; Japanese National Standards Task Force, 1998, 2006). Japan is one of the largest economies in Asia and the United States and Japan has expanded bilateral economic relationship (U.S. Department of State, 2014),

and it is necessary for American students to be literate about languages and cultures of the United States' major trading partners for their career opportunities (Modern Language Association, 2011, 2012).

The importance of foreign language education has been re-recognized since the tragedy occurred on September 11, 2001 (Kelleher, Haynes, & Moore, 2010). Since that time, because of the increased awareness of international terrorism as well as economic globalization, the four federal agencies – the Secretaries of Education, State, Defense, and the Director of National Intelligence, led by President Bush – launched the National Security Language Initiative (NSLI) (Jackson & Malone, 2009; U.S. Department of Education, 2008). Together, their goal is to increase the number of people who truly understand language and its culture. The program is designed to provide foreign language education to students from kindergarten to people already in the workforce. In the vision of the NSLI, foreign language education is seen as a key area to help students become successfully prepared contributors in the global workplace (Berdan & Berdan, 2014; Jackson & Malone, 2009; Modern Language Association, 2011, 2012; U.S. Department of Education, 2008). The U.S. Department of Education supports the effort of increasing students' proficiency in critical-need foreign languages as one of its current strategic goals, and Japanese is one of these languages (U.S. Department of Education, 2008, 2010).

Polls conducted by the American Council on Education (ACE) after September 11 revealed the strong support for language education from parents and students (Abbott & Brown, 2006). The 2010 annual report by the American Council on the Teaching of Foreign Languages (ACTFL) indicated that almost 30% of students claim that they would have started learning a foreign language in elementary school if they had a chance to go back and change their foreign language learning

experience (ACTFL, 2010). Even though it is true that the majority of students study foreign language in order to meet the requirement for graduation, a large number of students list other reasons for studying a foreign language, including becoming fluent (38%), broadening their career choices (37%), and using it in travel abroad (26%). The research conducted by ACTFL revealed that nearly half of Americans need to deal with someone whose first language is not English on a weekly basis (Abbott & Brown, 2006). To be prepared to join in an ethnically and linguistically diverse American workforce and abroad, the vast majority of Americans today see the importance of foreign language education for the nation and their own career opportunities.

In addition to the importance of learning foreign languages, people these days are surrounded by a variety of technological tools from a young age, and having technological skills becomes essential for their everyday lives in this century (Jalali et al., 2009). Students, referred to as the net generation, learn through the use of technology (Brown, 2002; Garrison & Vaughan, 2008). In accordance with this societal change, educators need to understand current students' learning styles and needs, and create an ideal learning environment for them. At school, technology can be integrated in a variety of subject areas as a tool for learning, solving problems, and developing individuals' potential (Leloup & Ponterio, 2003; Partnership for 21st Century Skills, 2009; Rasinen, 2003).

The International Society for Technology in Education (ISTE, 2012) has prepared the National Educational Technology Standards (NETS) for students, teachers, and administrators supports the use of technology across the curriculum in learning, teaching, and leading in the digital age. NETS is designed to help students in improving their higher-order thinking skills, which include critical thinking, problem

solving, and creativity through student-centered and project-based learning. Traditional educational opportunities for students in classroom-based learning tend to be more teacher-centered, but implementing technologies in class assignments provide students broader opportunities to be fully engaged and responsible for their learning (Garrison & Vaughan, 2008). Students' ways of learning as well as expectations for students are changing in current diverse and multicultural society, and educators must meet the needs of today's students.

To assist students in preparing for this global society, the national organization, the partnership for 21st century skills (P21), introduces a set of skills as 21st century skills (Partnership for 21st century skills, 2009). The framework for 21st century learning is composed of four main skills, knowledge, and expertise. They are (a) core subjects and 21st century themes, (b) learning and innovation skills, (c) life and career skills, and (d) information, media and technology skills. World languages are included in the core subjects as one of the essential mastery items. In order to be considered truly literate, students are expected not only to be able to read, write, listen, and speak, but also to use technology and interact and exchange information in diverse communities (Morrison, 2012; New South Wales Department of Education and Training, 2010).

Students today are already familiar with using technological tools, which is one of the requirements to be truly literate (Tokuda, 2012). Yet, just using a technology is not enough to meet an expectation. To succeed in the 21st century, students need an ability to access, analyze, criticize, and utilize information obtained through technological tools (Johnson, Levine, Smith, & Stone, 2010; New South Wales Department of Education and Training, 2010). Students are expected to have different levels of thinking skills, and in educational fields Bloom's Taxonomy has

been widely used as a guide for text design and curriculum development, not only in the United States, but also throughout the world (Anderson et al., 2001; Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956).

In the 1950s, Benjamin Bloom and his colleagues developed Bloom's Taxonomy to categorize intellectual skills and behavior based on three major domains of learning: cognitive, affective, and psychomotor (Bloom et al., 1956). Six major classes – knowledge, comprehension, application, analysis, synthesize, and evaluation – are ranked based on thinking skills from low to high in hierarchical order. The taxonomy has been used universally to create a holistic form of education. Since its first publication in 1956, the problems that educators struggle with have been changing. Thus, in order to refocus educators' attention and to incorporate new knowledge and thought into the framework, a revision was made (Anderson et al., 2001). The new taxonomy is based on the cognitive process dimension and includes four different types of knowledge: factual, conceptual, procedural, and metacognitive. In the new taxonomy, the order of the top two thinking skills, synthesize and evaluation, are switched. Students are expected to acquire from lower to higher order thinking skills, and apply these skills in real-life situations.

As indicated in Bloom's Taxonomy (1956), the importance of education is to provide students opportunities to enhance their intellectual skills from lower to higher levels of thinking, and a variety of 21st century skills, including critical thinking skills and problem solving skills, are such higher level of thinking skills. In this global society, acquiring the 21st century skills is the way for students to move up the economic ladder (Kay, 2010). According to employers, the most expected skills for new hires to have are skills such as critical thinking, information, innovation, and creativity (Lombardi, 2007). Foreign language educators are expected to promote

these skills in students through language classes. The P21 (2011) has created the 21st century skills map in collaboration with ACTFL to demonstrate the models of how these skills can be advanced through language education. Different levels of thinking skills are involved in these tasks, and it is crucial for students to have critical thinking skills (Anderson et al., 2001). Foreign language educators are encouraged to be a part of the movement to support students' success in acquiring these skills through language learning experiences.

The Standards for Foreign Language Learning in the 21st century (the National Standards) describe the philosophy of foreign language education in the United States and define what students should know and be able to do with foreign languages along with their first language (National Standards in Foreign Language Education Project, 2006), and the National Standards have had a greater impact on K-16 language education (ACTFL, 2011). As stated in the opening of the National Standards, "language and communication are at the heart of the human experience" (National Standards in Foreign Language Education Project, 2006, p.7), and the National Standards focus on language learning for real life communication through the five goals, the 5 C's – Communication, Cultures, Connections, Comparisons, and Communities.

The goal of language education is not only to teach linguistic features, but also to assist students in developing their language proficiency around modes of communicative competence reflecting real life communication (National Standards in Foreign Language Education Project, 2006; Partnership for 21st century skills, 2011). Communicative competence is an ability to be able to function in a communicative setting in a linguistically and culturally appropriate manner (Shrum & Glisan, 2010). Effective communication skills are strengthened through cross-cultural awareness

(Kay, 2010), which become essential not just for workers who are in diverse geographic environments, but for all workers (Institute for the Future, 2011). Working environments, created by diverse members of different ages, skills, disciplines, and working and thinking styles, are important characteristics to be truly creative and innovative. Successful workers are expected to be able to work in such environments. To communicate and work successfully in this type of working environment, cross-cultural competency becomes critical (Institute for the Future, 2011). Through foreign language education, students can cultivate multiple skills and enhance cross-cultural awareness (Kelleher et al., 2010; Modern Language Association, 2011).

Studying another language and culture also promotes students' cognitive development and flexibility (Berdan & Berdan, 2014; National Standards in Foreign Language Education Project, 2006). For instance, young children have a special capacity, and they are able to learn as many languages as possible when they are exposed to hearing the target languages systematically and regularly (Curtain & Dahlberg, 2010). Research indicated that children with the experience of learning a foreign language at a young age achieved higher levels of cognitive development at earlier ages (Bialystok & Hakuta, 1994; Hakuta, 1986). Also, a greater cognitive flexibility was shown by language learners. From the study of bilingualism, it was revealed that bilinguals performed better than monolinguals on both verbal and nonverbal tests (Hakuta, 1986). Superiority of bilinguals was more clearly seen on nonverbal tests. The results of nonverbal tests showed that bilinguals had higher mental manipulation abilities and reorganization skills of visual patterns. Bilinguals had advantages in cognitive flexibility, and they were also better able to deal with distractions than monolinguals (Vedantam, 2004).

It is also reported that students with foreign language learning experience perform higher in other subject areas (Berdan & Berdan, 2014; National Standards in Foreign Language Education Project, 2006). Students who have studied foreign languages in high school tend to have higher scores in English and math on the Scholastic Aptitude Test (SAT) and the American College Test (ACT) (College Board, 2010; Cooper, 1987; National Standards in Foreign Language Education Project, 2006). The test results reinforce that the longer students study foreign languages, the higher the scores of critical reading, mathematics, and writing (College Board, 2010). These studies also reveal that economic backgrounds are not related to students' performances (Cooper, 1987; National Standards in Foreign Language Education Project, 2006).

In spite of positive influences on students through foreign language education, other subject areas tend to be more focused on in K-12 education (Common Core State Standards Initiative, 2012). In order to ensure students' mastery levels of English language arts and mathematics, common core state standards have already been adapted in 45 states and three territories. The clear and realistic goals are set for students' success in the post secondary education and workforce. Comparing the common core state standards for English language arts and literacy in history/ social studies, science, and technical subjects and the National Standards for foreign language learning, it is clear that many goals and expectations for students are overlapped in both standards. The common core includes four standards – reading, writing, speaking and listening, and language, and these standards are captured in the Communication goal of the National Standards (Common Core State Standards Initiative, 2012; National Standards in Foreign Language Education Project, 2006).

In the National Standards, Communication is represented by three modes of communication – Interpersonal, Interpretive, and Presentational (National Standards in Foreign Language Education Project, 2006). The Communication Standards contain: (a) the interpersonal mode includes speaking, listening or writing, and reading; (b) the interpretive mode consists of reading, listening, or viewing; and (c) the presentational mode encompasses writing, speaking, or visually representing. When both standards are compared, it is clear that the National Standards emphasize stronger the purpose behind the communication (ACTFL, 2012b). Through foreign language education, students are able to enhance their abilities in reading, writing, speaking and listening, and language, which are critical in other subject areas.

A variety of benefits for learning a foreign language are pointed out in the National Standards (National Standards in Foreign Language Education Project, 2006). Through foreign language and cultural education, students are able to gain cultural insights through comparing their native language and the target language, improve communication skills, and access unique and original information and aspects of the target language and culture (Modern Language Association, 2011). Based on the National Standards, the Standards for Japanese Language Learning is prepared by the task force members, who were diverse representatives of K-16 levels of Japanese language educators throughout the United States (The Japanese National Standards Task Force, 2006). The purpose of preparing the Japanese Standards is to assist teachers and students in highlighting and mastering the unique features of the Japanese language and culture within and beyond classroom settings. By supporting this vision, all K-16 students can receive benefits through studying Japanese.

Japanese is the forth most commonly used language on the Internet, proceeded by English, Chinese, and Spanish (Internet World Stats, 2010). Japanese speaking

Internet users have been growing, and students have broader opportunities to speak or chat with Japanese speakers online. Bilingualism appears to become more significant in the Internet world as well. Through foreign language education, students are able to communicate with diverse people in this digital era. In earlier eras, people only met a few hundreds of people in their lifetime (Gardner, 2010). However, along with the development of the Internet, meeting someone is no longer limited to face-to-face interaction. People's communication circle is expanding compared with earlier eras, and students encounter thousands of individuals from different countries through traveling abroad as well as through using digital media.

As for the rate of computers-in use, the United States has always been ranked as one of the top countries in the world (Computer Industry Almanac Inc, n.d.). The results of a study conducted in 2012 (Internet World Stats, 2012) indicated that the largest population of computer users was China, followed by the United States, India, and Japan. However, the study showed that the United Kingdom had the highest percentage of users, 83.6%, and among these four countries, Japan had the highest percentage, 79.5%, followed by the United States, 78.1%, China, 40.1%, and India, 11.4%. In addition, because of the sales of low-cost PCs, the sales volume of PCs will increase in regions such as the Middle East, Africa, Latin America, and Asian countries, and people in Asia will become the most frequent computer users in the world by the year 2015（Computer Industry Almanac Inc, n.d.). In this shrinking world, people are utilizing technology to improve their lives (Morrison, 2012).

Accessing the Internet for everyday needs is a part of people's lives today (Compare Business Products, 2007; Johnson et al., 2010). In addition to computers, people connect to the Internet through other digital devices, such as smartphones, iPods, and iPads. High-speed Internet access is also available anytime anywhere in

some cities in the world. The highest connected city in the world is Seoul in South Korea, followed by Taipei, Taiwan, Tokyo, Japan, Hong Kong, China, and Singapore (Compare Business Products, 2007). Several cities in the U. S. are tied at number seven as a part of various municipal projects focusing on offering affordable Internet access, and Silicon Valley is ranked number 10. The top five most Internet connected cities are in Asian countries, and these rankings support the fact that Asian countries are expanding in their digital power (Compare Business Products, 2007). However, this technology-enhanced environment has not only brought a positive attribute to people. Within this environment, some users become addicted to the use of technology, and it has become a serious social issue in some countries, including the United States, China, Taiwan, and Korea (Dokoupil, 2012).

Since the beginning of personal computing, people in the United States have been exposed to more opportunities to use computers (Computer Industry Almanac Inc, n.d.). In recent years, American educators' and policy makers' interests in implementing computers in education through one-to-one programs, one computer per student, have been increasing (Bebell & O'Dwyer, 2010; Livingston, 2009). Their goal is that all teachers and students have access to a variety of technology more frequently. In most cases, computers are used in classrooms, and it has been proven that the use of computers has a positive impact on students' learning and critical thinking skills as well as teachers' instructional methods (Grimes & Warschauer, 2008; Livingston, 2009). The use of computers has been successfully implemented for students to be able to work on a school project, like a digital storytelling project, and to reach out and interact with the community.

The laptop program brings 24/7 accesses to a computer, and it creates significant changes to both students and teachers (Livingston, 2009). The necessity of

one computer per student has been supported, because it allows each student access to technology freely (Belle & O'Dwyer, 2010). Students use computers more frequently for studying English language arts and social studies than for mathematics and science (Shapley, Sheehan, Maloney, & Caranikas-Walker, 2010). Students commonly use computers to write papers, do research online, prepare presentations, maintain a personal calendar, use picture-managing applications, work with movies, and take quizzes (Suhr, Hernandez, Grimes, & Warschauer, 2010). Students in Japanese classes are required to complete similar tasks, such as writing papers, using a web-browser for research, preparing presentations, and making movies for their projects. Based on the result of the frequency of the use of computers in English language arts classes, it can be predicted that implementing technology in Japanese classes will be greatly beneficial for students as well.

The involvement of technology has influenced the way people educate their students globally, and it is important for educators to integrate technological tools in class assignments and instructions, through which students can enrich their learning and be prepared to succeed in the 21st century (Partnership for 21st Century Skills, 2009, 2011). Students are expected to gain technological skills following the current trends in education, and using technological tools also makes students' learning easier and more enjoyable (Tokuda & Izumi-Taylor, 2012). Thus, studying about the ways of integrating technological tools in Japanese classes is greatly beneficial to both educators and students.

Statement of the Problem

The results of a survey conducted by the Modern Language Association show that language courses are offered in 99% of all higher education institutions in the United States (Modern Language Association, 2010). The importance of foreign language education has been recognized by parents and students, and many expectations are now placed on foreign language educators for successful instruction (Abbott & Brown, 2006). However, teaching a foreign language to all students effectively is somewhat of a challenging task for language educators, because many students claim some difficulties of acquiring a foreign language (Evarrs & Knotek, 2006). Students' learning difficulties are related to various issues such as auditory ability, anxiety, memory, reading ability, inability of maintaining focus, and difficulties with their first language. Other factors affect students' learning effectiveness, including age, gender, ethnicity, educational backgrounds, preferred learning styles, and reasons for studying a foreign language.

In addition to individual differences, students encounter difficulties of mastering a selected target language depending on its linguistic and cultural traits. The Defense Language Aptitude Battery (DLAB) is a test to measure aptitude for learning a foreign language, and all foreign languages are categorized in one of four levels, from level I to level IV, depending on their difficulties for native English speakers. Within this scale, Japanese is categorized in level IV, which is considered as one of the most difficult languages to master, along with Arabic, Chinese, and Korean (Defense Language Institute Foreign Language Center, n.d.; Japanese National Standards Task Force, 2006).

The article presented by the National Security Agency (n.d.) describes the comparative analysis of relative difficulties for learning foreign languages to English-

speakers. Different languages were compared based on different aspects of languages, including phonology, morphology, syntax, lexicology, writing system, and stylistic features. In order to measure difficulties of mastering each language, differences between English and those languages were compared. As a result of the analysis, Japanese was the only language, which was admitted to be different from English in all categories, and it was concluded that Japanese was possibly the most difficult language for English speaking students.

As presented in the National Standards, attaining a goal of learning a new language is not a one-dimensional effort. As a result of foreign language learning experience, students are expected to be able to communicate with others in a linguistically and culturally appropriate manner (National Standards in Foreign Language Education Project, 2006; Shrum & Glisan, 2010). In order to support students in developing their language and cultural competence, the five goals stated in the National Standards – Communication, Cultures, Connections, Comparisons, and Communities – are equally important (National Standards in Foreign Language Education Project, 2006). In the new paradigm of foreign language education, language learning is no longer just being familiar with the language system alone. Mastering isolated linguistic features, such as memorizing words, learning grammar rules, and mastering verb conjugations, are not enough for students to be able to convey and interpret messages and communicate with others in the target language. The focus is placed on "learning what to say to whom and when" (National Standards in Foreign Language Education Project, 2006, p.33), and acquiring sociolinguistics, gestures, and non-verbal communication is critical to be fluent in the target language.

To master all five of these goals, students cannot simply learn the target language through a textbook in a classroom. Students need to be exposed to authentic

and real-life opportunities to communicate with Japanese native speakers, connect the Japanese language and culture firsthand, and be involved in Japanese communities. The 2010 Census indicated that the Asian population in the United States has been growing (U.S. Department of Commerce, 2012). Within the 50 states, 71% of Japanese people live in the West, followed by 12.5% in the South, 8.5% in the Northeast, and 8.0% in the Midwest (U.S. Department of Commerce, 2012). Based on these data, it is a challenging task for students to meet native Japanese people easily and be involved in Japanese communities outside of the classroom in the Memphis area because of the limited number of Japanese people in the South. Out of the five goals, Communities has been often referred as the "Lost C" because of its difficulty in being implemented in teaching (ACTFL, 2011).

To solve this problem, technology can be implemented in language education to support students' learning. Through a technology-based virtual reality, students are able to play and simulate real world experiences (Foreman, 2003). A variety of online tools can be used in language education. These are all authentic learning materials, and learners can immerse themselves in a language-learning environment (Kang, 2007). Students can use these technological tools to learn Japanese, instead of going to Japan and spending a great deal of time and money to expand their language and cultural skills. These tools are also useful for their lifelong educational experience. Through the use of the Internet, a variety of collaborative opportunities have been created such as e-mails, discussions, chats, blogs, and wikis. These technologies, called Web 2.0 technologies, are to enhance people's collaboration and communication skills (Godwin-Jones, 2003). Social networking sites have become more popular, and 73% of adults now use some kind of social networking site in their everyday lives, such as Facebook, Linked In, and Pinterest (Pew Research Center,

2013a). Like these examples, students are also able to immerse themselves in real-life communication and language learning environments through the use of technologies (Kang, 2007).

All the five goals stated in the National Standards are interconnected, none of the goals stands alone, and students are expected to acquire knowledge and skills within each goal area (National Standards in Foreign Language Education Project, 2006). The National Standards contain broader perspectives for language learning beyond classroom settings. Therefore, integrating technology in class activities is helpful to provide a wide range of opportunities for students to use the target language to communicate with others. Depending on the areas of the United States, it is hard to connect to Japanese communities firsthand for learners of Japanese. In the Communication goals of the National Standards, three modes of Communication are included (National Standards in Foreign Language Education Project, 2006). They are the interpersonal mode, the interpretive mode, and the presentational mode. These three modes cover engaging in conversation and exchanging opinions, understanding and interpreting written and spoken language, and presenting information and ideas to an audience. Communication through online tools, including chats, e-mails, skype, online radio, newspaper, and YouTube videos allow students opportunities to experience authentic forms of communication that would otherwise be unavailable without technology (Godwin-Jones, 2003; Kang, 2007). Through the effective use of technological tools, students can experience their target language and culture firsthand, and in this respect technological tools and devices can be used as suitable and powerful resources for language learning.

Purpose of the Study

The purpose of this study was to examine how college students can be supported to learn Japanese language effectively and to be exposed to culture by utilizing technological tools, such as computers, smartphones, tablets, game consoles, and eBooks. Each student has a different background for studying Japanese, different purpose for learning, distinct career goals, and a variety of reasons to use technological tools. Students are referred to such as digital learners, net generations, or technologically savvy (Brown, 2002; Dziuban, Hartman, Juge, Moskal, & Sorg, 2006; Garrison & Vaughan, 2008), and it can be predicted that students gain some knowledge and proficiency of the target language and culture through the use of technology (Attewell, Savill-Smith, & Douch, 2009; Lee, 2009). As seen in the National Standards (National Standards in Foreign Language Education Project, 2006), language learning is not simply mastering linguistic features, such as memorizing vocabularies and verb conjugations. Ideal language learning can be realized through communication and experiences with people in a target culture and language.

There is a variety of resources available online, and students can use them for free. Also, in addition to the earlier web applications, Web 1.0, the Web 2.0 technologies have been widely used in the field of education. While Web 1.0 is a one-way communication, Web 2.0 is a two-way communication (Burrows, 2007; Solomon & Schrum, 2007). Web 2.0 technologies involve web users' active participation, and students can expand their social networks through online communication. These activities, such as expanding communities and communicating with others are important elements of language learning, and students have engaged in these tasks through the use of technology. Through this study, the two major themes were

investigated: what kind of web applications and technological devices are used for their study of Japanese, and to what extent using technology can help college students master learning Japanese language and culture in accordance with the National Standards.

Research Questions

This study was guided by the following five research questions:

1. How comfortable do students feel in using technology to learn Japanese and how is that comfort expressed in terms of (a) the time students invest in using the technology and (b) changes in their orientation in learning the language?
2. With respect to learning Japanese, with what frequency do students use particular technological devices, for what specific purposes, in what sorts of locations, and in what kinds of social and environmental supports?
3. How does the use of technology support mastering expected outcomes stated in the five goals of the National Standards for learning Japanese?
4. What relationships are observed in students' self-assessed mastery level of the five goals of the National Standards and the four metrics indicating the extent of students' use of technology?
5. What most motivates students to use technology out of these three areas – language learning, cultural acquisition, or social networking?

Significance of the Study

To be successful, students today are expected to have a variety of knowledge and skills, which are not limited to their areas of expertise (Partnership for 21st Century Skills, 2009), and educators are expected to support students in acquiring a variety of 21st century skills through different subject areas. The 21st century skills map presents a variety of activities for different levels of language learners in order

for them to enhance their language and cultural skills reflecting the five goals of the National Standards and the 21st century skills (Partnership for 21st Century Skills, 2011).

In the United States, because of the increase of its diversity, some languages are no longer "foreign" languages. Some students have home background in the target language as a heritage learner, and in some communities a language other than English is used (National Standards for Foreign Language Education Project, 2006). The report (Reuters, 2013) indicated that one in five people speak a language other than English at home in 2011, and this number increased 158 % over the three decades. The Census report revealed that 62% of the 55.4 million foreign language speakers speak Spanish, followed by Indo-European languages at 19%, Asian and Pacific Island languages at 15%, and other language at 4% (U.S. Department of Commerce, 2010). Based on these data, Japanese, which is one of the Asian and Pacific Island languages, is still a foreign language to many people in the United States.

The goal of foreign language education is to develop students' language and cultural competence in order for them to communicate with others and perform tasks in a target language in a linguistically and culturally appropriate manner. The five goals stated in the National Standards are equally important and interconnected to each other to realize the goal of foreign language education (National Standards for Foreign Language Education Project, 2006). By finding out how technological tools can be used to promote students' foreign language and cultural study, this study can be used to contribute the following aspects:

1. The relationship with the use of technology and students' mastery level of the five goals of the National Standards might offer a picture of how the National

Standards can be covered, and how effectively language education can be supported through the use of technology.

2. One of the five goals, "Communities," is hard to integrate in class activities under circumstances, where Japanese is a foreign language, and there is no easy connection to Japanese culture and community through social life. Through this study, how technological devices provide students alternate ways to be a part of Japanese community and learn Japanese culture and society were investigated.

3. In order to acquire language and cultural competence, a variety of skills are required, including reading, writing, listening, speaking, sociolinguistics, and understanding culture. Through this study, the purpose of students' use of technology was determined, and the result could be reflected to lesson planning and class activities.

Limitations of the Study

These are the number of limitations for this study:

1. Because students will voluntarily participate in the study to answer the questionnaire through survey monkey, some students may not participate in the study seriously. Without having someone's supervision, students may have trouble maintaining seriousness responding to the questionnaire.

2. A total of 230 students are currently studying Japanese at this institution; therefore, the target sample size cannot exceed 200.

3. Results of this study are limited to the participants at this institution. The findings may not be easily generalized to other educational settings.

4. The survey questions may not include all of the effective use of technology for learning foreign language and culture.

5. This research is limited to only college students in the United States.

Definition of Terms

Technology

The word "technology" is originally rooted in two Greek words: Techne (art or skill) and logos (reason), and the practical and systematic application of knowledge are involved (Spector & Wang, 2002). Generally, the view for technology includes the application of science, such as methods and techniques, to solve problems for individuals and organizations as well as tools and equipment. Technology is defined as "the practical application of knowledge especially in a particular use" by Merriam Webster Online Dictionary (2012b, para. 1). The United Nations Educational, Scientific and Cultural Organization (UNESCO) defines technology as "…the know-how and creative processes that may assist people to utilize tools, resources and systems to solve problems and to enhance control over the natural and made environment in an endeavor to improve the human condition" (as cited in Technology Education Federation of Australia, 1999, "What is technology?", para. 1). In educational field, technology is integrated in a variety of subject areas as a tool for learning, solving problems, and developing individuals' potential to support students' development (Leloup & Ponterio, 2003; Partnership for 21st Century Skills, 2009; Rasinen, 2003; Spector & Wang, 2002).

The National Standards

The Standards for Foreign Language Learning in the 21st Century (The National Standards) describe the philosophy of foreign language education in the United States, and define what students should know and be able to do with foreign language (National Standards in Foreign Language Education Project, 2006). The National Standards aim to support students' development of at least one other language, along with their first language. The National Standards contain the five

goals, the 5C's – Communication, Cultures, Connections, Comparisons, and Communities, and there are 11 content standards under the five goals. Each goal facilitates the foreign language education as well as strengthening their first language.

21st Century Skills

The 21st century skills are a set of skills, knowledge and expertise, which are necessary for students to success in work and life. These includes (a) core subjects and 21st century themes such as global awareness, financial, economic, business and entrepreneurial literacy, civic literacy, health literacy, and environmental literacy, (b) learning and innovation skills including creativity and innovation, critical thinking and problem solving, and communication and collaboration, (c) information, media and technology skills such as information literacy, media literacy, and ICT (information, communication and technology) literacy, and (d) life and career skills, containing flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility (Partnership for 21st century skills, 2011).

Effective Japanese learning

Japanese is linguistically and culturally distant from English (Japanese National Standards Task Force, 2006; National Security Agency, n.d.). Because of syntactic, lexical, and orthographic differences between English and Japanese, achieving a higher level of proficiency in Japanese is a challenging task for English speakers. Japanese is categorized in Category IV language, which is considered as the most difficult language to master (Defense Language Institute Foreign Language Center, n.d.; Japanese National Standards Task Force, 2006; National Security Agency, n.d.). In addition to the linguistic difference, gaining cultural aspects and practices raises hurdle for students to master Japanese. Under standards-based

instruction, students are led to develop their linguistic and cultural competence to be able to communicate in linguistically and culturally appropriate manner in multicultural American society and abroad. To sum up, effective Japanese learning is the way to overcome linguistic and cultural difficulties to achieve high level of proficiency in Japanese, and students are educated to become well-rounded and balanced language students through effective Japanese teaching.

Cultural Learning

"The term culture is generally understood to include the philosophical perspectives, the behavioral practices, and the products – both tangible and intangible – of a society" (National Standards in Foreign Language Education Project, 2006, p.47). Levy (2007) described culture by five perspectives: "culture as elemental; culture as relative; culture as group membership; culture as contested; and culture as individual" (p.105). Culture includes the "Big C" and "the little c" (National Standards in Foreign Language Education Project, 2006, p.48). The "Big C" culture represents some knowledge of the formal institutions, history, fine arts, and literature, etc. The "little c" culture includes aspects related to daily life, including housing, clothing, food, tools, transportation, and all the patterns of behavior that members in the target culture regard as necessary and appreciate (National Standards in Foreign Language Education Project, 2006). Through cultural learning, students are able to understand the differences between the target culture and their own, and develop an awareness of other people's world views.

Overview of the Study

In this chapter, theoretical background and the overview of the related research, the purpose, the significance, and the limitation of this study were stated. In chapter two, literature review related to the use and needs of technology in an

educational field in the U.S., and the significance of integrating technology in language education were presented. The selected literature included: (a) 21st century skills and technology for education in the United States, (b) the use of technology in a foreign language education, (c) the national standards and technology, (d) learning Japanese in the United States, (e) autonomous learning and technology, and (f) blended learning in higher education. In additional, (g) negative aspects of using computers was included as well to overview the use of technology exclusively.

In chapter three, the methodology employed in this study was delineated. First, the research design was described, followed by the descriptions of the participants, the development of the instruments, and the procedure of data collection. At the end of this section, the tool and statistical methods analyzing the collected data were presented.

In chapter four, the results of the data analyses and the findings were presented. The Statistical Package for the Social Science (SPSS) version 20.0 was used to analyze collected data. The data downloaded from the online service "Survey Monkey" were brought into the SPSS environment. In chapter five, the major findings, conclusions, pedagogical implications, limitations, and recommendations based on this research were discussed.

Chapter 2

Literature Review

Theoretical and empirical literature on the use of technology in classrooms was reviewed in order to establish the background for the study. This literature review began by explaining the involvement of technology in education as a current trend in the United States, and explaining about 21st century skills, which are required for today's students to succeed. The second part presented the use of technology in a foreign language education. The third part addressed the National Standards for foreign language learning and the use of technology. The fourth part focused on the difficulties of learning Japanese as a foreign language. In the fifth part, autonomous learning through the use of technology was discussed. In the sixth part, blended learning in higher education was presented. Lastly, negative aspects of the use of technology were introduced.

21st Century Skills and Technology for Education in the United States

Along with the development of technology, its functions and perspectives have also been changing. For example, computers were mainly used for intellectual property in electronic environments, but now they are used for different purposes such as communication devices and teaching and learning tools. Together with societal changes, the meaning of literacy may have been expanded. The literacy means the ability to read and write (Merriam Webster Online Dictionary, 2012a). However, there is an argument that "to be literate" is more than just being able to read and write (Hepworth & Walton, 2009). Literacy also includes speaking and listening, including an ability to communicate and interact with others. Students need to have these foundational literacies, including comprehension, phonics, vocabulary knowledge, phonemic awareness, writing, and spelling, to adopt and adjust to

literacies of the future (New South Wales Department of Education and Training, 2010). In a networked society, a skill of using technological tools becomes a part of literacy as well (Morrison, 2012; New South Wales Department of Education and Training, 2010). E-literacy is the ability of accessing, handling, and utilizing information obtained in an electronic environment. The use of electronic networks, including assessing information, creating resources, and communicating with others, is included in E-literacy as well (Hepworth & Walton, 2009; New South Wales Department of Education and Training, 2010). In 1991, the amount of money that was spent on information technology ($112 billion) surpassed the amount that was used for product technology ($107 billion) (Partnership for 21st century skills, 2008). This shift to information products and services is occurring not only in the United States, but also in all other developed countries.

Under the Clinton administration, the Technology Literacy Challenge was officially identified in 1996 (The White House, 1996), and since then a variety of opportunities has been created in each state in order to support students' computer literacy (Baker & Labbo, 2007; Rasinen, 2003; U.S. Department of Education, 1993). Under the Obama administration, technology implementation in education for learning and teaching has been supported by being identified in National Education Technology Plan (U.S. Department of Education, Office of Educational Technology, 2010). In 2013, President Obama announced the connectED initiative to enrich K-12 education in the U.S. to transition to digital learning (U.S. Department of Education, Office of the Secretary, 2014; The White House, 2014). Through this program, access to broadband in American schools will be expanded up to 99% by 2017. The current access is less than 30%, but students are also provided digital devices such as tablets and computers to be able to enhance learning and develop communication and

collaboration skills. The President will request the budget in 2015 for high-quality professional development for teachers to meet changes and demands in rapidly changing societies. Students are expected to have an ability to access, analyze, criticize, and utilize information through the use of technology (Johnson et al., 2010; U.S. Department of Education, Office of Educational Technology, 2010). To prepare students to meet these expectations successfully, the integration of technological devices in educational work is encouraged in a variety field of distinct subject areas.

The National Education Technology Plan (NETP) is a 5-year action plan to empower the United States to remain competitive in a global economy (U.S. Department of Education, Office of Educational Technology, 2010). A learning model presented in the NETP contains goals and recommendations in five essential areas: learning, assessment, teaching, infrastructure, and productivity. To meet the goal of learning, it is recommended to integrate 21st-century competences and expertise in a variety of subject areas, and to utilize advances in learning sciences and technology to enhance the areas of science, technology, engineering, and mathematics. Through the use of the Internet and mobile devices, students can be involved in deeper understanding of complex ideas. The purpose of technology implementation should be to provide students meaningful learning opportunities to solve complex and authentic problems (Herrington & Kervin, 2007). Technology integration also creates opportunities for educators to design, develop, and implement assessments, and provide quality and quantity of feedback to learners (U.S. Department of Education, Office of Educational Technology, 2010). A series of these proactive actions lead both educators and students to be involved in more effective teaching and learning. Through technology-based learning resources and tools, student-centered learning becomes available 24/7 anytime anywhere.

The national organization, the Partnership for 21st Century Skills, presented a list of skills, which the U.S. Department of Education refereed to as the 21st-century competences and expertise, in order for students to be successful in work and life in the 21st century (Partnership for 21st Century Skills, 2009). In these skills, core subjects and 21st century themes are listed as essential mastery for current students. Core subjects include English, world languages, arts, mathematics, economics, science, geography, history, and government and civics. School curricula are expected not only to include these core subjects, but also to provide ample opportunities for students to understand the contents by applying them to global issues, financial and economical issues, and civic life to promote their understanding at higher levels, in schools and beyond classroom settings, by utilizing the power of technology (Maximizing the impact: The pivotal role of technology in a 21st century education system, 2007).

In addition to the core subjects and 21st century themes, the 21st century skills comprise (a) learning and innovation skills, (b) life and career skills, and (c) information, media, and technology skills. Different types of skills are included in each category, and students must acquire these skills to be better prepared and educated for a global society. Learning and innovation skills embrace critical thinking skills, problem solving skills, and communication and collaboration skills. Life and career skills include adaptability, cross-cultural skills, independence, and leadership. Through the expansion of information, media and technology skills, students are expected to gain information literacy, media literacy, and information and communications technology (ICT) literacy (Partnership for 21st Century Skills, 2009). Expectations for students are reflecting current changes in the world, and to provide meaningful learning opportunities for students to acquire these 21st century skills,

educators also must change and be prepared to meet students' needs (Maximizing the impact: The pivotal role of technology in a 21st century education system, 2007).

Across the United States, it was reported that in some states one laptop per child programs were adapted, and students had the positive influence on academic outcomes and acquiring 21st century skills through the use of technology (Grimes & Warschauer, 2008; New South Wales Department of Education and Training, 2009). The largest one-to-one laptop program can be found in Maine, Henrico Country, Virginia, and New Orleans, Louisiana (Grimes & Warschauer, 2008). In these places, laptops have been provided to all middle school and a large number of high school students. Other large pilot studies were conducted in Texas, Florida, New Hampshire, and California (New South Wales Department of Education and Training, 2009). In a one-to-one laptop classroom, teaching and learning activities can be different from a regular classroom. In a technology-enabled classroom, teachers are more likely to become facilitators, and students are actively involved in a student-centered learning environment. Teachers spend more time demonstrating and directing activities rather than lecturing, and students spend more time working on a project and discussing in small groups, which enhances not only students' multimedia skills, but also information literacy, communication skills, and collaboration skills (New South Wales Department of Education and Training, 2009).

Grimes and Warschauer (2008) conducted a study about one-to-one computer programs in Southern California. Their research focus was to determine how the teaching and learning patterns were changed after the implementation of the laptop program and the impact of the laptop program on students' test scores. It was found that laptops were regularly used at all three schools which participated in the study, and laptops were mainly used in classes such as language arts, science, and social

studies, but the use of laptops was less frequent in mathematics (Grimes & Warschauer, 2008). Through the research, Grimes and Warschauer (2008) found positive changes in the four categories – writing, information literacy, multimedia skills, and autonomy. A total of 98% of students used laptops to write papers at school, and 85% of students used them to write papers at home. Students used laptops in all stages of writing, and gained additional benefits through the use of laptops. They could access the Internet and gather information, use graphic organizers for planning, and write drafts and revise them. Students were apt to revise their work, which is an important habit to become a good writer (Grimes & Warschauer, 2008). Teachers also reported that it was easier to grade papers which were written using laptops than those which were written by hand. Students also found that writing papers by computers was easier than writing by hand. Through the laptop program, students began to enjoy writing for authentic purposes, including writing brochures, newspapers, and formal letters. Technology also allows students to share products and ideas easily online (U.S. Department of Education, Office of Educational Technology, 2010).

The Partnership for 21st Century Skills (2009) has advocated the importance of information literacy and media literacy for people who live in an environment surrounded by a variety of technological tools. Students are expected not only to have technological skills to access a variety of information, but also to have an information literacy to evaluate and apply information critically and competently (Grimes & Warschauer, 2008; Johnson et al., 2010; Partnership for 21st century Skills, n.d.). In these studies, students' purpose of using computers was more to browse or search the Internet, and researchers found three main purposes of students' accessing online information. They were (a) obtaining background knowledge, (b) being facilitated

with “just in time” learning, and (c) receiving support for research projects (Grimes & Warschauer, 2008, p. 317). Researchers observed students’ active involvement in learning, increased autonomy for maintaining schoolwork both inside and outside of school, and a broader range of research projects, which became available for students as a result of computer implementation. Simply using technology does not support students’ learning, and the key to effective use of technology is its use in constructive ways (Wenglinsky, 2005). Teachers need to make sure that technology is not a supplement for teachers, but for providing opportunities for students to analyze problems, find solutions, and think critically. Considering all of these positive attributes, implementing technological devices in the classroom is powerful and worthy for both students and teachers in the educational field.

Using technology has become a part of students’ lives today, and an ability of using technology and computers is a fundamental skill for students’ success in the future (Johnson et al., 2010; Partnership for 21st century Skills, n.d.). Now, 81% of U.S. adults use laptop or desktop computers somewhere in their lives, including home, work, and school (Pew Research Center, 2014). By looking at people’s computer use in age categories, 89% of people between the ages of 18 to 29 use computers, 86% between 30 and 49 use them, 84% between 50 and 64, and 56% of people over age 65 use computers. It is clear by these numbers that a wide range of people frequently use computers. The time invested in Internet use by American adults has expanded from 14% in 1995 to 87% in 2014 (Pew Research Center, 2014). In addition to computers, mobile technology has expanded people’s access to the Internet anytime anywhere (Johnson et al., 2010). There are some “cell-mostly” Internet users (Pew Research Center, 2013b, p. 2), and the number of smartphones holders has also increased up to 58% (Pew Research Center, 2014).

"People expect to be able to work, learn, and study whenever and wherever they want to" (Johnson et al., 2010, p. 4), and this is one of the trends, which is identified as one of the keys of technology adaptions from 2010 to 2015. Currently, two-thirds of the people who are in developing countries utilize mobile computing devices such as smartphones, netbooks, and smartbooks, and they no longer need to sit in front of a computer to access data and services. In the U.S., the percentage of smartphone owners in 2012 was 62% for undergraduate students and 46% for adults (Dahlstrom & diFilipo, 2013). As for undergraduate students, it increased from 55% in 2011 to 62% in 2012. Based on the research conducted by Pew Research Center (2014), 58% of Americans own smartphones in 2014: 83% between ages 18 and 29, 74% between 30 and 49, 49% between 50 and 64, and 19% over 65. Educational level is associated with smartphone use, and the higher the educational level, the more it is used. Using iPads and other tablets also provides people opportunities to access the Internet. The percentage of users of iPads and other tablets in 2012 was 15% for undergraduate students and 19% for adults (Dahlstrom & diFilipo, 2013).

Through a variety of technological tools, students are able to access information anytime anywhere, and 82% of intuitions welcome environments for students to use their own devices. This trend is described as BYO (Bring Your Own) technologies (Dahlstrom & diFilipo, 2013). Such mobile and networkable devises can provide exciting opportunities for teaching and learning in educational settings. This expansion of power of technology through mobile devices also provides a great influence for people in developing countries as well (Johnson et al., 2010). Accessing and obtaining information and materials through mobiles is more affordable, more accessible, and easier than using desktop computers.

Despite the increase of technology involvement in education, there are criticisms against evaluation for learning outcomes through the use of technology in teaching and learning due to the lack of rigor in quantitative measures (O'Donnell, 2006). It is difficult to conclude that using modern technology supports students in developing their higher cognitive process, since there are many uncontrolled variables involved such as differences in students' cultural background, degrees of experience with technology, and subject areas (De Lisi, 2006). Students from different cultures have distinct perceptions and experiences for the use of technology, and available technologies are also distinctive across different subject areas.

The Use of Technology in a Foreign Language Education

In the United States, foreign language educators have placed more emphasis on communicative competence over the last 20 years rather than focusing on structures of the language (Partnership for 21st Century Skills, 2011). "Communication, or communicating in languages other than English, is at the heart of second language study, whether the communication takes place face-to-face, in writing, or across centuries through the reading of literature" (National Standards in Foreign Language Education Project, 2006, p. 31). The assumptions of language acquisition by many language educators are shifted from behaviorist assumptions, under which language learning is seen as habit formation, to contextual, collaborative, and social-international approaches, where language acquisition is observed through cognitive and constructivist perspectives (Kern & Warschauer, 2000; Shrum & Glisan, 2010; Thorne, 2008). Research focuses in the field of second language (L2) learning and acquisition have been changing from classroom contexts to natural settings, from acquisition to participation, from L2 learning to L2 use, and from the four language skills (listening, speaking, reading, and writing) to culture, interaction,

communication skills, and knowledge construction (Wang & Vásquez, 2012). Along with these changes, foreign language educators have recognized that teaching culture is as important as teaching linguistic features, and authentic materials have been more incorporated in the instruction.

Another big change for the field of language education is the implementation of computer-assisted language learning (CALL) (Kern & Warschauer, 2000). Technology has been implemented in the field of language education since the beginning of its burst, even without an extant research about benefits of the use of technologies. Prevalence of technology is even becoming more powerful in today's world, and during the past decade, Web 2.0 applications for the purpose of communication, collaboration, and social interaction, have become crucial components of many students' lives personally and academically (McBride, 2009; Wang & Vásquez, 2012). People use mobile devices for both personal and educational purposes (Ducate & Lomicka, 2013). Currently, 73% of college students in the U.S. use smartphones, and it is predicted that the percentage of smartphone users will increase up to 91.4% by the year 2016 (eMarketer, 2012). In addition to smartphones, the rate of college students purchasing tablets is growing rapidly. Along with the growth of these mobile devices, mobile-assisted language learning (MALL) has begun to become popular in the field of language education (Ducate & Lomicka, 2013). Mobile learning is the new way of facilitating, supporting, enhancing and extending the reach of teaching and learning through the use of ubiquitous handheld technologies within wireless and mobile phone networks (Attewell et al., 2009). Based on the research, nearly twice as many undergraduate students in 2012 claimed that they used these devices for educational purposes, compared with the year 2011 (Dahlstrom & diFilipo, 2013). Learning can take place in traditional classroom

settings, as well as any other locations. Mobile learning makes it possible for students to learn at anytime/ anywhere.

Although using technology has become a part of people's lives and implemented in educational settings, some researchers of L2 acquisition question whether implementation of technology in a foreign language education truly supports students in advancing their learning (Leloup & Ponterio, 2003). "The computer is an optional tool to assist the language learning process but that technology does not transform the goal of what is to be learned" (Warschauer, 2002, p. 455). As Warschauer pointed out, technology has been implemented to assist the language education in many different ways, but most of the research has shown that technology is related to factors such as learners' interaction and motivation (Attewell et al., 2009). However, it is still unclear if technology purely promotes learners' outcomes (Leloup & Ponterio, 2003).

Even though there are some arguments regarding positive effects of implementing technology in language classes, students responded positively on a survey in connection with mobile learning (Attewell et al., 2009; Ducate & Lomicka, 2013). As a result of the survey conducted by the Mobile Learning Network (MoLeNET) in the UK, 91% of students agreed that mobile learning supported or may support them in learning, 93% of them answered that it made their learning more interesting and enjoyable, and 84% of them wanted to be involved in mobile learning in the future (Attewell et al., 2009). A great amount of both students and teachers answered that mobile technology helps students to learn (69% of students and 73% of teachers), makes learning more interesting (60% of students and 71% of teachers), helps students to learn in different places (78% of students and 73% of teachers), and

helps students to learn at different times (75% of students and 86% of teachers) (Attewell et al., 2009).

Ducate and Lomicka (2013) studied how students used mobile devices in French and German classes. In their study, a student commented about greater exposure to the target language and culture anytime and anywhere beyond the classroom settings. Other projects conducted in the UK also revealed that mobile devices were used for speaking and writing practices for foreign languages (Attewell et al., 2009).

Lentz (2013) described that through the use of technology she could rediscover one of the five goal areas of the National Standards, Communities, which was referred to as "the lost C" (ACTFL, 2011). In addition to interacting with people in the local community in the target language through service learning, students can connect with the community of the target language by using technological tools such as ePals Global Community (electronic pen-pal), Skype (interacting with someone in real-time), and Edmodo (social networking like Facebook). Educators can create meaningful learning environments by implementing technological tools in class activities, and Communities goals, which were difficult to cover, can be accomplished as well (Lentz, 2013).

The National Standards and Technology

Learning a new language is not simple (Tokuda & Izimi-Taylor, 2012). Different linguistic skills (speaking, listening, writing, and reading) need to be mastered. Yet, these skills are not enough to command a language appropriately in different circumstances. Students need to learn culture and practical rules for use of language (Tokuda & Izumi-Taylor, 2012). For instance, different modes of speaking are involved when one is speaking to family members, friends, or professors. Writing

a diary, school paper, or business letters are all distinctly different as well. To be a well-rounded student of language, one is expected to know how to use a language appropriately in different situations. Through standards-based instruction, students are assisted in developing their communicative competence through the 5 C's (Communication, Cultures, Connections, Comparisons, and Communities) of the National Standards (National Standards in Foreign Language Education Project, 2006; Shrum & Glisan, 2010). They depict the areas, which should be focused on in effective foreign language education. However, many of these elements on the National Standards cannot be simply learned through textbooks in the classroom. Students need to be exposed to authentic opportunities to use and experience language and culture in order for them to build strong foundations of language. In many cases, there is a limitation on what can be done in a classroom. Therefore, using technologies for language learning will make it easy for students to absorb the components included in these five goal areas (Tokuda & Izumi-Taylor, 2012).

Kern and Warschauer (2000) pointed out the difference between Computer Assisted Language Learning (CALL) and Network-Based Language Teaching (NBLT). In CALL, students are in self-contained situations, such as doing drills and instructional games on the computer. In contrast, the focus of NBLT is for human-to-human communication, which is more closely related to the goals set in the National Standards. Through the Internet, students can communicate with native speakers of the target language outside of the classroom without going to that country (Malone, Rifkin, Christian, & Johnson, 2005). Students can also talk with other learners of the target language. They also have an opportunity to expose themselves to a target culture and community through computer networks (Kern & Warschauer, 2000). With the assistance of technology, students can expand their learning opportunities as well

as social community, and they are exposed to dynamic learning experiences.

Technologies bring many positive features to students (Brown, 2002). Through technologies, students can access a variety of live information. By using mobile devices, learning becomes available anytime, anywhere (Attewell el al., 2009). Students who are categorized as digital learners are more excited, more attracted, and enjoy doing tasks by using technological devices (Attewell el al., 2009; Brown, 2002). Even though using technologies should not be a primary purpose for an activity, the example of NBLT shows that technology is expanding learning opportunities for students (Kern & Warschauer, 2000). As shown in the National Standards, communication is one of the essential elements for language education, and the use of technology expands the boundary of communication as well. Students now have an opportunity to exchange their ideas not only in face-to-face discussions, but also through computer-mediated communication (CMC) (Godwin-Jones, 2003; Thorne, 2008), and researchers found that some students were more actively involved in discussions through CMC and synchronous CMC (SCMC), which are commonly referred as chat (Thorne, 2008). The higher frequency of students' production was found through SCMC compared with the oral discussion in the class with the same topic (Thorne, 2008).

Considering students in the present time, educators need to create an effective curriculum, in which students acquire knowledge, skills, and information through the use of technology. Creating such a curriculum supports students in acquiring foreign languages and attaining higher levels of proficiency (Christian & Johnson, 2005; Leloup & Ponterio, 2003). Technology is understood now not only as a tool for learning languages, but also as a tool for personal and social development (Warschauer, 2002). These days, there are many technological devices, which can be

used to enhance both learning and teaching (Attewell et al., 2009). However, students may not know how to use technological devices for learning, and they may be also less enthusiastic using those devices for educational purposes, which are different from the way they usually use them in their daily lives (McBride, 2009). To enhance technology use for educational purposes, students need guidance and scaffolding.

Learning Japanese in the United States

The importance of learning Japanese as a foreign language has been increasing in the past decade (Modern Language Association, 2010). The National Security Language Initiative (NSLI) was announced by President Bush in 2006. This initiative identified critical-need foreign languages which included languages such as Arabic, Chinese, Korean, Russian, Japanese, and languages in the Indic, Iranian, and Turkic families. The U.S. citizens have been strongly encouraged to learn, speak, and teach these languages (U.S. Department of Education, 2008). The NSLI was represented by four federal agencies - U.S. Department of Education, U.S. Department of State, U.S. Department of Defense, and Office of the Director of National Intelligence under the leadership of the White House. A K-16 pipeline was created by the partnership among these four agencies, and its goal is to support the education of the critical-need foreign languages.

The Department of Education sponsors a variety of programs to support and promote the NSLI critical languages along with the other world languages for students and to assist teachers in the field of foreign language education (U.S. Department of Education, 2008). One of the programs, the Foreign Language Assistance Program (FLAP), was started in 1988 for promoting foreign language education in elementary and secondary level, and in 2006 the program was refocused to promote the NSLI critical languages (U.S. Department of Education, 2008). The

idea of increasing students' proficiency in critical-need foreign languages was included as one of the current strategic goals (U.S. Department of Education, 2010). Through these policies, it appears that Japanese is one of the difficult languages, which is necessary to be mastered by students of the United States within this global society.

The ACTFL proficiency guidelines were prepared for distinguishing students' proficiency levels in terms of speaking, writing, listening, and reading in real-life situations (ACTFL, 2013). Students are graded on their performances in an unstructured and open-ended context (ACTFL, 2012a). There are five major levels – Distinguished, Superior, Advanced, Intermediate, and Novice. Within Advanced, Intermediate, and Novice level, students are subdivided into high, mid, and low sublevels. The Oral Proficiency Interview (OPI) is an interpersonal speaking assessment of functional language ability, and currently it is being used to evaluate proficiency levels in more than 50 languages (ACTFL, 2012a). Although the requirements for attaining the various levels of proficiency in each language are the same, the time and effort for reaching those levels varies depending on the difficulty of the language being tested.

Each language is rated in one of four categories based on the difficulties of reaching its mastery level (ACTFL announces ACE college credit recommendation for official ACTFL OPI Rating, n.d.). Languages that are classified in category I are Dutch, English (as a foreign language), French, Italian, Spanish, Portuguese, and so on. Category II contains languages such as German, Modern Greek, Hindi, and Indonesian. Category III includes Cambodian, Czech, Hebrew, Polish, Russian, and so on. Languages that are considered to be most difficult to master are grouped in category IV, and Japanese is one of the languages, along with Arabic, Korean,

Cantonese and Mandarin (ACTFL announces ACE college credit recommendation for official ACTFL OPI Rating, n.d.).

The Defense Language Institute Foreign Language Center (DLIFLC) is the primary foreign language institute for the Department of Defense. DLIFLC is considered as one of the highest quality language schools in the United States, and more than 40 languages are offered (Defense Language Institute Foreign Language Center, n.d.). The lengths of courses vary between 26 and 64 weeks, depending on the levels of difficulty of mastering the target language. There are four categories, and the suggested length of study to reach an acceptable level of proficiency is 26 weeks for category I, 36 weeks for category II, and 47 weeks for category III. The courses offered for Asian languages, including Japanese, Korean, and Chinese, are designated in category IV, and last for 64 weeks for the basic level.

As shown by the DLIFLC ratings, Japanese is listed as one of the hardest languages to master as a foreign language (Defense Language Institute Foreign Language Center, n.d.). Shibatani (1990) explained its unique situation as to how the Japanese language has been developed and its origin is uncertain. Unlike European languages, the Japanese language has been secluded from other languages, because of its physical isolation from other countries. There is no known linguistic connection to other languages, which is totally different from European languages. Japanese also has three unique writing styles; Hiragana, Katakana, and Kanji. All of these features add to making Japanese a difficult language to master (Japanese National Standards Task Force, 2006).

Both ACTFL and DLIFLC take into account the importance of cultural understandings and practices, along with linguistic aspects, when the difficulties of languages are determined (ACTFL, 2012a; Defense Language Institute Foreign

Language Center, n.d.). The Japanese language is not only linguistically unique, but also sociocultural aspects of the language add additional difficulties (Japanese National Standards Task Force, 2006; National Security Agency, n.d.; Shibatani, 1990). When speaking Japanese, students' utterances are expected to be culturally appropriate depending on each setting, gender and social status of participants in the speech.

The Japan Foundation (JF) explained the components of mastering Japanese as a foreign language through the illustration of the JF language tree as indicated in Figure 1 (Japan Foundation, 2010). Two main components of the language tree are communicative language competences and communicative language activities. Communicative language competences consist of three sub-components: linguistic competences, pragmatic competences, and sociolinguistic competences. These are the roots of the tree, and support language activities. Linguistic competences are comprised of general linguistic range, vocabulary range and control, grammatical accuracy, semantic competences, and so on. Pragmatic competences are made up of flexibility, turntaking, coherence and cohesion, accuracy and fluency. Sociolinguistic competences describe how students use language in a socially appropriate way. There are a variety of communicative language activities that are depicted in the JF language tree. Through these activities, students come to build strong communicative language components. The JF language tree is a visual explanation enforcing the reasons why it is important for students to understand language use in a culturally appropriate way (Japan Foundation, 2010).

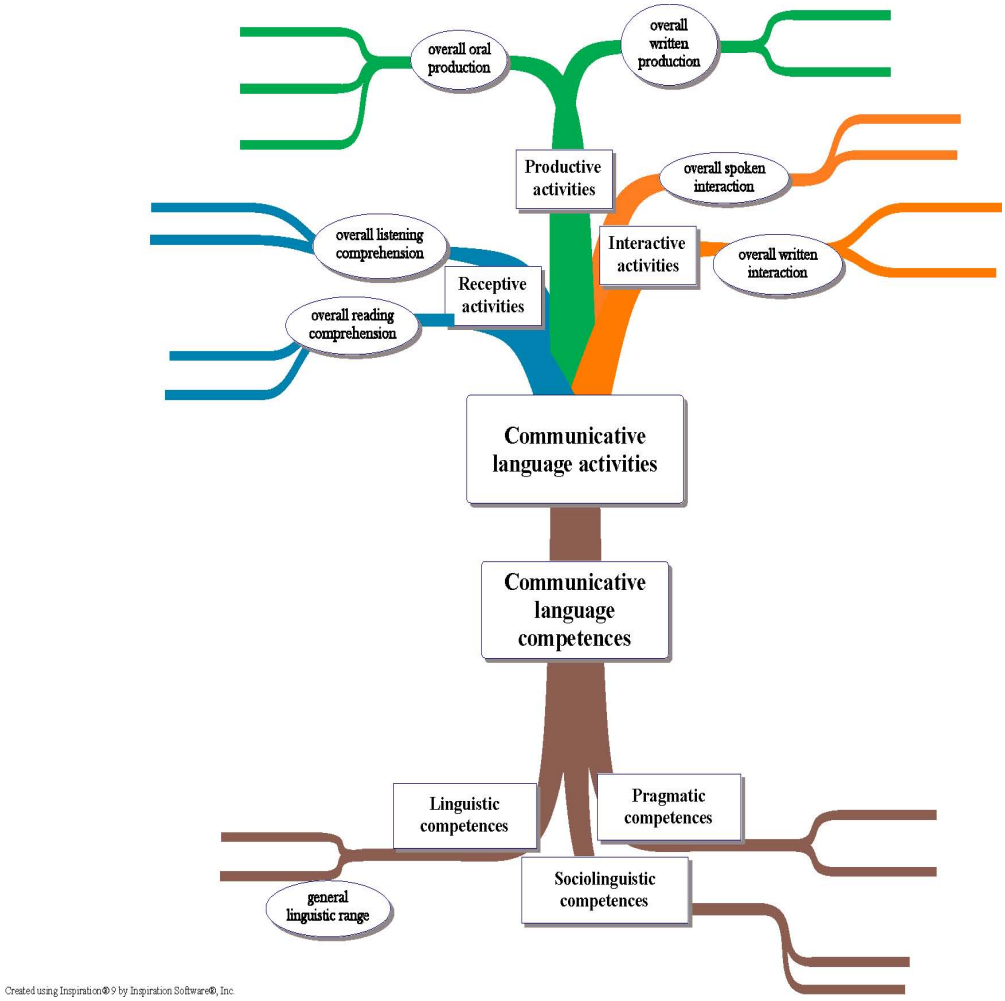

Figure 1. The JF Language Tree

To use a target language in culturally appropriate ways, students must understand and learn a target culture. Culture determines how people behave and interact with others. Culture is defined as "the way of life of a people, for the sum of their learned behavior patterns, attitudes, and material things" (Hall, 1990, p. 20). Each country has unstated rules, and people do and see things in different ways depending on their own rules. People in a common culture share methods of coding, storing, and retrieving information, and it is difficult for outsiders to understand those hidden codes (Hall & Hall, 1990). It is estimated that 90% or more of all

communication is conveyed by nonverbal messages. Hall (1990) explained these concealed factors for communication influenced by each culture as the silent language. This is the reason why it is critical for students to understand a target culture to truly master a target language. They cannot communicate successfully without knowing a target culture. To be fluent in a target language, students must acquire not only oral and written language, but also silent language so that they can understand hidden and unstated rules.

There are two levels of culture; (a) overt or explicit culture and (b) covert or implicit culture (Hall, 1990). The former is visible and it is easy to describe. On the other hand, the latter is not visible and it is hard to understand even for a trained observer. Each culture can be placed somewhere on the scale of high- to low-context based on actual communication patterns of people in a given culture, and it shows inherent cultural differences (Hall & Hall, 1990). In a high-context culture, massages are implicit and a lot of nonverbal communication is involved. The country that is listed at the top of high-context cultures is Japan, preceded by Arab countries, Greece, and Spain. In Japanese, Arabic, and Mediterranean cultures, people are involved in communication by using extensive information networks that are coded and implicit (Hall & Hall, 1990). On the other hand, North America is listed under a low-context culture, and most of the information is clear by explicit code. In another words, people in a low-context culture, such as America, Germany, and Switzerland, need to have detailed background information to interact with each other.

Communication patterns in the U.S. and Japan are in the contrasting directions, and American students who study Japanese need to be aware of this fact. A large part of the culture is taken for granted, but learning hidden rules, the silent language, is extremely important as well as mastering linguistic components. Studying a language

like Japanese, which is linguistically and culturally distant from other languages, provides students more unique and profound opportunities to realize the degree of differences of language and culture between Japanese and their own (Japanese National Standards Task Force, 1998, 2006). This cross-cultural awareness results in students being able to develop distinctive insights about their own language and culture as well as the target language and culture. Learning a foreign culture leads to understanding their own culture (Hall, 1990). Through foreign language education, students are able to communicate in a linguistically and culturally appropriate manner in a multicultural American society and abroad.

Autonomous Learning and Technology

Using technology is widely integrated in a variety of subject areas in order for students to broaden technological literacy to use it as a research and living tool (Partnership for 21st Century Skills, 2009). Rasinen (2003) introduced various cases of technology education in the six different countries – Australia, England, France, The Netherlands, Sweden, and the United States. Although there were some differences in the details among these countries, each country's ultimate goal was set on giving students opportunities to become technologically literate. Out of the six countries, Australia most clearly stated the purpose of implementing technology in foreign language education, with an overall goal of maximizing students' flexibility and adaptability in their future employment and everyday life (Rasinen, 2003). France used technology for students to be able to learn how to use French language correctly. Even though there were differences in detail, a common goal was found among these countries. All these six countries viewed technology as a tool for learning, solving problems, and developing individuals' potentials (Rasinen, 2003). In this respect,

educators are expected to assign tasks, which provide students meaningful learning opportunities through the use of technology.

The educational approach that provides meaningful learning opportunities and promotes problem-solving skills to students is associated with constructivist theory (Piaget, 1976; Vygotsky, 1978). Under constructivism, students are actively involved in constructing their own knowledge and skills through tasks and activities by working with peers as well as adults (Burden & Byrd, 2010; DeVries, Zan, Hildebrandt, Edmiaston, & Sales, 2002; Kieff & Casbergue, 2000). Piaget and Vygotsky are two well-known constructivist theorists, who have had a great influence in the field of education. Piaget stated that students learned through action, and he placed the importance on play (Piaget, 1976). According to Vygotsky (1978), students can build new concepts through social interactions. Students are able to solve problems, which are beyond their actual mental age and level, with the assistance from adults or more mature peers. This theory is known as Zone of Proximal Development (ZPD) (Vygotsky, 1978). Both Piaget and Vygotsky suggested how students should be engaged in learning.

In constructivist classrooms, although students are dynamically involved in learning through challenging tasks (Branscombe, Castle, Dorsey, Surbeck, & Taylor, 2003; Burden & Byrd, 2010), they need support. Vygotsky (1978) explained the importance of providing scaffolding for students to reach the potential developmental level. Assistance from adults or more mature peers is one type of scaffolding. During this process, there are continuous and constructive interactions between experts and learners, but once students reach their potential developmental level, scaffolding diminishes (Sharma & Hannafin, 2007).

Vygotsky's developmental theory can be applied to the second language (L2) acquisition as well (Ohta, 2001). Although the one who provides assistance should be an adult or more capable peer according to Vygotsky's notion of the ZPD, true peers are also able to provide assistance in L2 learning settings. In language classroom, students have differential abilities – different strengths and weaknesses, and they can supplement one another. Vygotsky (1986) has also stated that when students learn L2, they can be facilitated by their advanced knowledge in their first language (L1). They have already developed certain concepts in their L1, and their L1 is used as a mediator. Ohta (2001) also emphasized the importance of providing tasks that are beyond one's current level, as shown in Vygotsky's theory, because a collaborative learning setting itself does not guarantee an occurrence of learning.

Problem-based learning (PBL) and inquiry learning (IL) approaches are powerful ways to facilitate students' learning and support developing their individual learning skills in educational settings (Hepworth & Walton, 2009; Hmelo-Silver, Duncan, & Chinn, 2007). For both approaches, students are engaging in relevant, authentic problems or questions in collaboratively settings (Hmelo-Silver el al., 2007). Students not only learn contents, but also strategies, self-directed learning skills, and collaboration skills through both approaches. These skills are not correlated to the educational levels of each student, and people who have achieved a higher degree of educational framework are not necessarily information literate (Hepworth & Walton, 2009). Some people have higher educational backgrounds and they are experts in their own subject areas, but they may not have independent study skills. The reasons these people lack individual research skills are often influenced by their previous learning experiences. If teachers fulfill students' needs, these types of learners tend to dislike the uncertainty and effort of seeking information (Hepworth & Walton, 2009).

However, they might be able to enjoy this type of learning with appropriate support and scaffolding. Learning is not interpreted as the transformation of information, but the expansion of one's boundaries in interpreting the world through different lenses.

In technology-enhanced environments, technological devices can be used as a scaffolding tool, and this new type of scaffolding motivates and attracts today's digital learners (Sharma & Hannafin, 2007). In the 1970s and 1980s, computer-based instruction was used to assist students in acquiring basic skills (O'Donnell, 2006). In present days, the use of technology supports students to enhance facets of human learning. Collaboration with others is also considered to be an important factor for students' conceptual development, as explained by Piaget and Vygotsky. Based on Piagetian theory, differing opinions in collaborative groups lead students to provoke conceptual change (O'Donnell, 2006). Vygotskian theory explained the importance of collaborative learning that in a group inexperienced peers can be scaffolded by experienced peers.

There are a variety of technological tools that can be applied to teaching, learning, and creative inquiry (Johnson et al., 2010). These tools include computers, game consoles, smartphones, netbooks, iPads, iPods, MP3 players, and ebooks. The use of technology is divided into one of two types of pedagogies, didactic approach and constructivist approach. If computers are used in a didactic way, substituting for teachers or class materials, its use is not effective (Wenglinsky, 2005). The more meaningful way of using computers is in a constructivist approach, where students are provided opportunities to solve problems through observation, discussion, and critical thinking by using higher order thinking skills. Along with the development of technology use in education, it is expected that learning becomes more autonomous (Chiu, 2012). Autonomous learning skills are categorized into three major types, and

students need to use all of them. They are: (a) general learning or study skills, including skills of researching, making choices and decisions concerning one's own learning; (b) skills and abilities relating to language learning, such as reading, writing, speaking, and listening; and (c) higher order thinking skills in order to deal with the various learning outcomes (Chiu, 2012). These skills stated above are all necessary for students to become autonomous leaners.

In a language classroom, students may need assistance in different areas, including reading texts, writing letters, interpreting passages, finding information, and communicating with others. By using a computer, online dictionaries, grammatical explanations, and popup dictionaries are available to use. Smartphones, iPods, and iPads also have a variety of apps to fulfill these needs. Students are also able to access a web browser through WiFi accessibility. Through the use of an ebook like an Amazon kindle, students can adjust the font size of the text, and use a text-to-speech feature as well. This function allows students to listen to the text.

Each student has a different learning style, and some students need to hear as much as they see (Felder & Henriques, 1995). Therefore, this is helpful for L2 learners, particularly when there is a distance between their first and the target language, as English and Japanese. Text-to-speech functions are now available in Japanese for various online applications, and it will be extremely beneficial for students to increase their reading fluency by being provided audio text as scaffolding, especially for audio learners and students with vision problems. The biggest difference between scaffolding and other types of assistance is that scaffolding is faded (Sharma & Hannafin, 2007). In technology-enhanced environments, students need to be responsible for choosing necessary scaffolding and stop relying on scaffolding once they reach the next level.

To create a constructivist classroom for students, teachers need to be aware of principles of constructivist teaching (DeVries et al., 2002). These principles are (a) creating a cooperative and sociomoral atmosphere where autonomy is encouraged over obedience, (b) creating a curriculum which reflects students' interests and provides ample opportunities for students to construct knowledge, (c) using different strategies of teaching depending on what kinds of knowledge is involved in lesson, (d) creating activities which provide students a wide range of developmental levels, (e) asking students questions that encourage them to think deeper on topics and develop critical thinking skills, (f) providing enough time for their investigation, (g) implementing assessment not only to ensure students' performance but also to evaluate curriculum. When teachers implement these principles, students can construct their own knowledge.

As stated above, depending on the focus of the class, teachers need to adjust plans and activities to maximize students' learning and development of knowledge. The knowledge is distinguished into three kinds by Piaget and his students (Trawick-Smith, 1994). They are social knowledge, physical knowledge, and logico-mathematical knowledge, and the manner of acquiring each knowledge is different. Students learn social knowledge directly through interaction and modeling from other people. This learning does not occur just by observing the physical world. No observable or logical reason exists for the fact that September is called September. Social conventions are made up mainly by social knowledge.

Contrary, physical knowledge is acquired through observation and experimentation (DeVries & Zan, 2012). Observation is often used in science curriculum of early childhood programs to let students find physical attributes of natural phenomena. Lastly, logico-mathematical knowledge is crucial for problem

solving and ongoing learning. By using this knowledge, students can create relationships among objects, events, or actions. To develop this knowledge, students need not only to observe and act on objects, but also to think about what they did. Creating mental relationships through observation and action is essential, and students can acquire this knowledge only when they discover such relationships on their own (DeVries & Zan, 2012).

This theory of acquiring three kinds of knowledge is fundamental for early childhood development, but the common theme can be found in the National Standards (National Standards in Foreign Language Education Project, 2006). The five goals – Communication, Cultures, Connections, Comparisons, and Communities – involve all of the actions which are necessary to acquire three kinds of knowledge, including communicating and interacting with others in social environment, observing, finding differences, thinking about topics, and making connections.

In constructivist classrooms, students have autonomy in learning to acquire new knowledge (DeVries & Zan, 2012; DeVries el al., 2002; Trawick-Smith, 1994). In today's society, technology, the new tool for interaction and discovery, is available. The use of technology can be implemented to enhance autonomous learning for generation of the digital age (Brown, 2002; Garrison & Vaughan, 2008). With the use of technology, a language instructor has a variety of roles – such as a coach, a guide, a mentor, and a facilitator. In the constructivist classroom, students are engaged in learning actively, and are able to work collaboratively with others, and discover knowledge (Thorne, 2008). Under these learning environments, students can acquire not only knowledge of the target subject, but also a variety of 21st century skills previously mentioned.

Since communicative competence has become the key word in the field of foreign language education, more attention has been placed on learner-centered instruction (Kern & Warschauer, 2000; Nyikos, 1996). Language learning is viewed as building a social structure through students' discourse and activities (Kern & Warschauer, 2000). Because Japanese and English are very distinct culturally and linguistically, students need to be exposed to social situations, where they can gain cultural and linguistic inputs, including social practices that are hard to find in the classroom (Japanese National Standards Task Force, 2006).

In order to increase the authenticity, it is recommended for teachers to use Japanese as much as possible in the classroom for daily expressions and giving instructions. For students, meaningful and comprehensible input in a new language is very important to facilitate the acquisition (Curtain & Dahlberg, 2010; Krashen, 1982). In language learning classrooms, to exceed the limitation of the class, teachers can create real-life situations by implementing task-based learning and content-based learning. In task-based learning, students are challenged to take on authentic tasks and projects. In content-based learning, students need to learn language and content at the same time (Kern & Warschauer, 2000). The Japanese National Standards Task Force (2006) has introduced learning scenarios, which contain various standards to help students develop their cultural knowledge and linguistic competence. Students learn about subjects such as hanami (flower viewing) and taifuu (typhoon) through a number of tasks such as listening, reading, writing, researching, interviewing, and presenting. Through activities such as content-based and task-based assignment, each student is directly involved in learning, which provides students autonomy in learning (DeVries el al., 2002).

Blended Learning in Higher Education

Blended learning means combining instructional methods, which are face-to-face and online instructions (Graham, 2006). Graham (2006, p. 5) explained it by stating that "blended learning systems combine face-to-face instruction with computer mediated instruction." It is widely admitted in educational fields that constructivist approaches are effective ways for students to discover and construct their knowledge, skills, and ideas (DeVries et al., 2002; Kieff & Casbergue, 2000). Especially in higher education, educators are expected to tailor programs, which are suitable and meaningful for students to meet the societal needs in the 21st century (Garrison & Vaughan, 2008). In this regard, to support and enhance students' learning effectiveness, the interest toward blended learning has been growing. It reflects the idea of combining two historically separate models of teaching and learning. In the past, each media and method has addressed the needs of different audiences. Traditionally, in face-to-face classes, learning typically occurs in a teacher-directed, high-fidelity environment through person-to-person, live interaction. On the other hand, the emphasis of distance learning is placed on self-paced learning in an asynchronous, low-fidelity environment (Graham, 2006). Learning is not a one-time event, and it should be a continuous process (Singh, 2003). Even through unstructured learning events, such as conversations and e-mails, learning occurs.

Because of the rapid innovation of digital technologies, people can do more things in distributed environments now, which were only possible in face-to-face environments before (Graham, 2006). People can communicate with each other without being physically at the same space by means of technologies, such as computer-supported collaboration, instant messaging, virtual communities, and blogging (Graham, 2006). Through blended learning, the advantages of both face-to-

face and online instruction can be combined, and it is predicted that the trend toward blended learning system will increase in the future. The benefits of blended learning are to be able to accommodate students' various learning styles (Graham, 2006). Students are able to gain and construct broader knowledge, skills, and perspectives through blended learning settings (Singh, 2003).

Benefits of blended learning over the traditional methods can be found in the research from various institutions (Bergmann & Sams, 2012; Singh, 2003). At Stanford University, they could raise the completion rate up to 94% by matching students' preferred learning style, interactive, social, or mentored learning, with the delivering technology. In the Stanford example, there were three factors, which were attributed to improvement: (a) motivating students through a scheduled live event, (b) availability of interacting with teachers and peers, and (c) higher quality monitoring. Based on the Stanford research, connecting self-paced materials with live e-learning delivery was highly suggested. Likewise, at the University of Tennessee's Physician's Executive MBA Program, learning outcomes were raised by 10% through the implementation of the well-designed blended learning course. These processes were successfully administered in some high school chemistry classes as well (Bergmann & Sams, 2012).

The community of inquiry (CoI) represents the theoretical idea of how individuals engage in purposeful learning through collaborative social interaction, critical discourse, and reflection (Garrison, Anderson, & Archer, 2000; Lipman, 2003). A classroom should be a community of inquiry, where students listen to each other's opinion with respect, agree or disagree with reasons, and try to find one another's assumptions (Lipman, 2003). In order to support students in developing their sense and reflective thinking, a curriculum should be consecutive. Textbooks

should be narrative, instead of being as sources of information. Teachers also should not provide students any definite answers, but help and guide them to achieve their understanding and good judgment. Students have a keen sense of observation, and they can build their understanding on their own.

In a desirable learning circumstance, curriculum should bring students unclear, unsettled, and problematic aspects (Lipman, 2003). Lipman (2003) has compared education with a disposal paper cup. The knowledge students get for passing the test can be forgotten with no regret and it is not relevant to life. It is taken for granted that the purpose of education is to fulfill students with the correct information and to lead them to the end result, but the importance should be placed on the process of inquiry. In this sense, classrooms should be a teacher-guided community of inquiry, where students are involved in reflective thinking.

The framework of the CoI is composed of three elements – (a) social presence, (b) cognitive presence, and (c) teaching presence, and learning occurs within the interaction of these three essential elements (Garrison et al., 2000; Garrison & Vaughan, 2008). To support the CoI, blending both traditional face-to-face learning environments with online learning settings can maximize students' learning. Out of the three core elements of the CoI, cognitive presence is considered the most basic element to success in higher education (Garrison et al., 2000). "Cognitive presence is a vital element in critical thinking, a process and outcome that is frequently presented as the ostensible goal of all higher education" (Garrison et al., 2000, p. 89). Yet, meaning and worthwhile educational outcomes are facilitated and maximized with the support from social presence and teaching presence. Learning strategies are categorized by two types – deep and surface learning (Newman, Johnson, Webb, & Cochrane, 1997). Strategies such as skimming, memorizing, and regurgitating for

tests are part of surface learning, and these skills are categorized as lower thinking skills on Bloom's taxonomy (Bloom et al., 1956).

On the other hand, deep learning leads students to higher-level thinking skills. Students are activated to think critically, logically, and creatively when they encounter problems and questions, which are unfamiliar and uncertain in a problematic situation (King, Goodson, & Rohani, n.d.). Students' active participation enhances deep learning, and critical thinking is a key in deep learning. To develop thinking skills, small group works including discussions, peer tutoring, and cooperative learning can be applicable. There is a difference between collaboration and common information exchange, and students can share experiences to construct and confirm meaning through collaboration. It is also possible to have communication and collaboration with others who are in other locations through computer-mediated communication (CMC), but it is not automatic. Although recently students are referred to as the net generation or Net Geners, they prefer having actual conversation and interaction with their teachers (Garrison & Vaughan, 2008). In another words, a teacher's presence can support students' learning. This is shown by the example at Stanford University, and opportunities to interact with teachers and peers are critical for effective learning, including online environments (Bergmann & Sams, 2012). To support these "Net Geners" students, a teacher's active participation as a facilitator reflects students' advancement. Teachers can control contents, and it leads students to higher levels of critical-thinking (Garrison et al., 2000; Newman et al., 1997).

Negative Aspects of Using Computers

Although integrating computers and technological devices in learning and school work has been evaluated positively in the educational field, it is important to note that there are some negative aspects of the influence of the use of computers on

students (Cordes & Miller, 2000). Concerning their physical, emotional, social, moral, and intellectual development, students are not ready to meet the requirements for navigating computers through constraining logical abstractions. It is critical to nurture students' imagination and critical-thinking skills through imaginative play and hands-on lessons with care and love from parents and teachers. Exposing students to a high-tech agenda interrupts the growth of their creativity and playfulness (Cordes & Miller, 2000).

Working at computers in school and at home also brings negative effects on students' health (Kelly, Dockrell, & Galvin, 2009). Students report some degree of discomfort while working on a computer, and there are also implications that none of the students work in a posture that can be maintained without experiencing pain and discomfort (Cordes & Miller, 2000; Kelly et al., 2009). They claim musculoskeletal discomfort in at least one body part, and the neck, back, and shoulders are found as common areas. To protect students' health and reduce their discomfort, changes of positions are necessary since they will not be able to manage pain for a long period of time; however, they become accustomed to having discomfort that is manageable in the short term. Adults also claim physical discomfort associated with the use of computers (Noack-Cooper, Sommerich, & Mirka, 2009). In the case of adults, they claim pain in the neck and hand/wrists due to long term computer use in non-neutral postures. Based on their study, 40% of high school students also report pain around the neck and back because of the increased amount of computer use. Computers have begun to take an essential role in their academic, social, and personal lives, and people start to use computers at earlier ages (Noack-Cooper et al., 2009). The pattern of computer use among college students ranges throughout a 24-hour day, and their

usage of computer in terms of total time surpasses professional workers who use computers during limited parts of the day.

Another negative aspect related to the increased usage of digital media is "internet-addicted teens," which is considered to be one of the more critical social issues in modern times (Dokoupil, 2012, p. 28). These youth are addicted to the use of technological devices, and they engage in online activities, such as checking text messages, e-mails, gaming, or using social network sites, up to every 15 minutes. Such excessive use of texting and social networking are related to unhealthy behaviors and social problems (Strom & Strom, 2012). As a result of the escalation of the usage of technological devices, students drop out of school and cannot handle real-life situations (Anderson, 2001; Dokoupil, 2012). Sleeping patterns, academic work, exercise, and face-to-face interaction with others, which are important parts of people's lives, are often displaced by heavy net users (Dokoupil, 2012; Storm & Strom, 2012). "The computer is like electronic cocaine" (Dokoupil, 2012, p. 27). This problem is not limited in the U.S., but also other countries, such as China, Taiwan, and Korea (Dokoupil, 2012). There is even an unbelievable case where it is reported that an infant died while a young couple was nourishing a virtual baby online and neglected to care for their own child (Dokoupil, 2012). Gary Small, the head of UCLA's Memory and Aging Research Center, claimed that Internet use affects changes in the brain, even through moderate Internet use (Dokoupil, 2012). People can use 38 hours of computer usage a week as a baseline for one of the early warning flags for the possibility of technological addiction.

Summary

In order to succeed in the 21st century, students need to meet a lot of expectations, and acquiring 21st century skills is essential. These skills include life

and career skills, learning and innovation skills, and information, media, and technology skills, as well as mastering core subjects. World languages are listed as one of these subjects (Partnership for 21st century skills, 2009). Especially after the tragedy on September 11, 2001, language education has been seen as a key area to help students become successful contributors in the global workplace. The NSLI was launched by the four federal agencies – the Secretaries of Education, State, Defense, and the Director of National Intelligence, led by President Bush (U. S. Department of Education, 2008). Together, their goal is to increase the number of people who truly understand language and its culture. Many of the critical-need languages listed in the NSLI are category IV languages, which are considered to be the most difficult languages to master (ACTFL announces ACE college credit recommendation for official ACTFL OPI Rating, n.d.). To support foreign language education, a variety of programs have been designed by the four agencies together for K-12 students, students in higher education, and people already in the workforce (U.S. Department of Education, 2008). Without having 21st skills and foreign language skills, students cannot be prepared for surviving in this global society or an environment with a rapid expansion of technology. Acquiring 21st century skills can help students achieve economic success (Kay, 2010).

Under standards-based instruction, foreign language education is no longer seen as simply studying grammatical structures or memorizing vocabulary. The National Standards are oriented to support the development of students' communicative competence. Communicative competence is an ability to function in communicative settings in culturally and linguistically appropriate manners, and language educators are expected to provide effective learning opportunities for students to develop their proficiency (National Standards in Foreign Language

Education Project, 2006; Shrum & Glisan, 2010). Technological tools are implemented in a variety of subject areas to enhance students' learning effectiveness, including language classes (Kern & Warschauer, 2000; Rasinen, 2003).

Technologies bring numerous benefits to students, such as the ability to access live information online, to communicate with someone beyond the limitations of face-to-face interaction, and to work collaboratively with peers (Kern & Warschauer, 2000; Thorne, 2008). Students today are technology savvy (Brown, 2002), and the use of technology will make their learning easier and more enjoyable. Technology can be used not only as a tool for learning, but also for personal and social development (Warschauer, 2002). Although students enhance their learning through the use of technology, it is also important to realize that technology also negatively affects some addicted users, and it is a critical social issue not only in the United States, but also in China, Taiwan, and Korea. Furthermore, despite the positive aspects of implementing technology in language classes, it is still unclear how specifically technology promotes students' learning (Leloup & Ponterio, 2003).

Chapter 3

Methodology

Overview

In this section, the methodology employed in this study was delineated. First, the research design was described, followed by the descriptions of the participants, the development of the instruments, and the procedure of data collection. At the end of this section, the tools used and the statistical methods employed to analyze the collected data were presented.

Research Design

An online survey research design was used to explore the influences of the use of technology on college students' learning Japanese. In this rapidly changing society, students enjoy using technological tools, and they are also expected to have media literacy to be successful in the 21st century (Brown, 2002; Partnership for 21st Century Skills, 2009). The study on the implementation of the laptop program has shown significant impacts on students' achievements in areas of writing, information literacy, multimedia skills, and autonomy (Grimes & Warschauer, 2008). Warschauer (2002) pointed out that the computer can be used as an optional tool to assist students in learning a language, but technology does not transform the goal of materials and contents. Even though technology impacts students' learning, it is still unclear if students' positive outcomes are promoted by the use of technology (Leloup & Ponterio, 2003). To address such uncertainties, a survey research design was adopted to provide a deeper understanding of how using technology assists college students in learning Japanese language and culture.

Prior to this study, a pilot study was conducted with 75 college students (Tokuda, 2012). The researcher modified an existing survey developed by Lee (2009) and created a questionnaire regarding college students' use of technology and Japanese language learning. Based on the pilot study, the following additions and descriptions were altered in collaboration with Japanese language teachers, statisticians, and bilingual educators. Some questions were taken out and more relevant questions were added to meet the researcher's expectations. After many discussions with Japanese language teachers, statisticians, and bilingual educators, modifications were made to the questionnaire.

The survey instrument was a questionnaire consisting of three parts to answer the five research questions. The first part of the questionnaire was designed to elicit students' demographic information as well as their backgrounds for studying Japanese and their reasons for taking Japanese courses at the university.

The second part of the questionnaire was created to examine students' use of technology for learning Japanese. In order to elicit students who have used technological devices for the purpose of learning Japanese, the online survey was designed to lead students, who answered that they did not use technology for Japanese study, to the exit page. For students, who used technological devices, this part of the questionnaire consisted of the following items: (a) kinds of technological tools or devices used, (b) their purposes for usage, (c) places where these devices are used, (d) average hours the technology is used per week and per session, (e) extent of using technology in Japanese classes, and (f) the students' perceptions concerning the use of technology.

The third part of the questionnaire was developed to determine students' conformity and their confidence level of using technology and their achievement

levels of language learning outcomes based on the National Standards through the use of technology (National Standards in Foreign Language Education Project, 2006). The National Standards embrace language learning from different perspectives. To measure students' interest for using technology, they were asked to rank in order the three components based on the importance, (a) language learning, (b) cultural acquisition, and (c) social networking.

Participants

The participants for this study were 202 students, both males and females, from first-year to fourth-year who were studying Japanese at one four-year-college in the southeastern United States. Research participation was voluntary. The Japanese major was created at this institution in 2008, and since then many students take Japanese for completing their major and minor requirements as well as fulfilling general education requirements. The department promotes students to take foreign language classes as a minor to enhance students' majors in different areas, such as, political science, business, history, anthropology, art history, English literature, and sociology. Out of 12 languages offered at this institution, as for majors the Japanese program has the second largest number of students. Currently, there are approximately 230 students who take Japanese. At the time of this study, students were enrolled in Japanese courses from the first-year to fourth-year level. Each course was three hours per week, and students were taking Japanese classes between three and 12 credit hours per semester.

Instruments

The instrument for this study was a 25-item survey questionnaire (see Appendix A). Part one of the questionnaire contained two parts: demographic questions and questions about students' experiences in studying Japanese. The

demographic item included five questions; gender, their major, age, racial or ethnic identification, and native language. Questions about learning Japanese included seven items; length of time studying Japanese, hours of credits in Japanese courses this semester, the number of hours of studying or preparing for Japanese classes per week, reasons for studying Japanese, average grades in Japanese classes, self-evaluated mastery level, and overall GPA. For all of the survey questions, students were asked to choose the most appropriate answer from the options. Other than reasons for studying Japanese, depending on the question, four to eight options were provided. As for reasons for studying Japanese, students chose the three most important reasons from a list of 11 total options. They ranked the three reasons that they chose in order of importance. Their ranking choices were "most important reason," "second most important reason," and "third most important reason." For students who could not find a suitable reason, a space was provided to write other reasons.

Part two of the questionnaire consisted of eight questions concerning technology use and learning Japanese. In this current technology-enhanced society, technology is considered as a key for empowering students and for potential impact in teaching, learning, and creative expression (Johnson et al., 2010). To analyze the effects of technology in students' learning of Japanese, four scales relating to the use of technology were developed by the researcher. First, students were asked if they use technology either inside or outside of class to learn Japanese. Students who answered yes were asked to check all possible answers on four scales. A Devices scale was created to measure what kinds of technological devices they use (see Table 1). A Purposes scale was to determine their primary use for technology (see Table 2). A Places scale was needed to find out the tendency of where students chose to use those

technological devices (see Table 3), and a Supports scale was to understand reasons why they chose to use technological devices to learn Japanese (see Table 4).

Part three contained five questions regarding the effects of using technology as a student of Japanese. Eleven academic outcomes were addressed based on the National Standards (National Standards in Foreign Language Education Project, 2006). In order to measure how technological tools had helped them to achieve particular outcomes, 11 questions were developed by the researcher based on the National Standards (see Table 5). This scale consisted of 5-points with responses ranging from "strongly agree" to "strongly disagree." The last question of this section was added to investigate students' motivation to learn Japanese through the use of technology.

Table 1

Devices Scale

Questionnaire Items
a) Personal Computer or Laptop Computer
b) Netbook
c) Game Console (e.g., Nintendo DS, Wii, Playstation)
d) Smartphone
e) iPad or Tablet
f) iPod or MP3 player
g) ebook reader (e.g., Kindle, Nook)
h) Other devices or "apps" (please specify)

Table 2

Purposes Scale

Questionnaire Items
a) To read Japanese text (newspaper, article, website, etc.)
b) To practice writing (Hiragana, Katakana, and Kanji)
c) To study Japanese grammar
d) To learn Japanese vocabulary
e) To use Japanese online dictionaries
f) To use browser add-ons (like Rikaichan)
g) To play Japanese learning games
h) To communicate online with other Japanese learners or native speakers (chat, skype, etc.)
i) To find information and resources
j) To listen to Japanese online radio, pod castings, etc.
k) To see Japanese online news and videos (YouTube videos, Japanese TV news, etc.)
l) To work with others in online community (Wiki, Google docs, etc.)
m) To use online translation tool and applications.
n) To keep in touch with Japanese friends.
o) Other uses (please specify).

Table 3

Places Scale

Questionnaire Items
a) In Japanese class
b) At my home
c) At a friend's or relative's home
d) In a campus computer lab
e) In a language learning lab
f) In the campus library
g) In a public library
h) Any public place where there is WiFi access
i) Other places not mentioned (please specify)

Table 4

Supports Scale

Questionnaire Items
a) Technology is all around us – it's readily accessible.
b) Technology makes learning Japanese more fun.
c) Technology helps me learn Japanese more efficiently.
d) Technology increases my motivation for learning Japanese.
e) Technology is just something I enjoy using in general.
f) Technology makes it easier to stay abreast of what's going in Japanese society/culture.
g) Technology keeps me in closer touch with Japanese friends and acquaintances.
h) Other supports not mentioned (please specify).

Table 5

The National Standards Scale

Questionnaire Items
a) Hold two-way conversation in Japanese (through both oral and written communication) to exchange information or express feelings.
b) Understand and interpret written and spoken Japanese on a variety of topics.
c) Present information, concepts, and ideas in Japanese to a listening or reading audience.
d) Relate Japanese cultural perspectives to Japanese customs and behavior patterns.
e) Relate Japanese cultural perspectives to Japanese works of art and other of Japan's cultural products.
f) Acquire knowledge of other disciplines through materials written or spoken in Japanese.
g) Gain fresh perspectives on society and culture by engaging materials unique to the Japanese worldview.
h) See similarities and differences between Japanese culture and my native culture.
i) See similarities and differences between the Japanese language and my own native language.
j) Make new acquaintances among Japanese native speakers and others wishing to learn more about Japan and its language.
k) Use Japanese for my personal enjoyment and enrichment.

Data Collection Procedures

Students who were taking Japanese courses were asked to complete an online survey (using the online service "Survey Monkey") in the spring and fall semesters of 2013 (see Appendix B). First, the researcher contacted the head professor of the Japanese program to receive permission to conduct this study with students in the Japanese program. After obtaining permission from the head professor, the researcher

asked seven other Japanese instructors' assistance in asking their students to participate in an online survey. Permission to conduct this research was granted by the IRB office (IRB ID #2503) (See Appendix C).

Data Analysis

Student responses were downloaded from the online service "Survey Monkey" and brought into the Statistical Package for the Social Sciences (SPSS) environment. SPSS for windows version 20.0 was used to analyze collected data. Both descriptive and inferential statistics were used to analyze the collected data, and the analysis methods were chosen and employed based on each research question (see Table 6). Once the data were imported, frequencies and percentages were obtained for all survey items before the analyses, and specific item subsets – namely those calling for students to "check all that apply" in the sections of the technology use and those pertinent to students' perceived mastery of the five goals of the National Standards for learning Japanese – were subjected to additional manipulation. In the case of "check all that apply" items, four usage metrics (Devices, Purposes, Places, and Supports) were created by summing across the checked (value of "1") and unchecked (value of "0") responses to items concerning types of technological devices used (Devices), places where the devices are used (Places), purposes for which the devices are used (Purposes), and social and environmental supports for using the devices (Supports). With respect to the eleven items concerned with measuring student mastery of the five goals of the National Standards (the National Standards scale), five scale means were obtained by averaging across students' responses to the items respectively concerned with "Communication" (3 items, $\alpha = 0.75$), "Cultures" (2 items, $\alpha = 0.85$), "Connections" (2 items, $\alpha = 0.66$), "Comparisons" (2 items, $\alpha = 0.77$), and "Communities" (2 items, $\alpha = 0.45$).

The descriptive analyses were conducted to scrutinize demographic variables and to summarize use of technology in terms of Devices, Purposes, Places, and Supports. The inferential analyses were employed to answer the five research questions. In order to answer the aspects regarding the relationship among the comfort level of using technology and the length of using it, increasing dedication for studying Japanese, and enhancing confidence for the research question 1, the Pearson product-moment correlation coefficient was used. For differences by demographics, usage of technology, and their mastery level, a Oneway Analysis of Variance (ANOVA) was used to compare differences to determine the positive influence on students' mastery levels of the National Standards through the use of technology for the research question 3. To find the relationship between each of the four usage metrics and students' mastery level of the National Standards for the research question 4, the Pearson product-moment correlation coefficient was used.

As projected in the National Standards, language learning is not simply mastering the linguistic features. On a survey, students were asked to rank in order – language learning, cultural acquisition, and social networking – based on why they are motived to use technology for learning to investigate answers for research question 5. The Friedman test was used to determine whether any differences existed among the ranks, and the Wilcoxon Ranks test was also employed to find the pairwise differences among the three ranks.

Table 6

Data Analysis Matrix

Research Questions	Data Analysis
1. How comfortable do students feel in using technology to learn Japanese and how is that comfort expressed in terms of (a) the time students invest in using the technology and (b) changes in their orientation in learning the language?	Descriptive Pearson Product-moment correlation
2. With respect to learning Japanese, with what frequency do students use particular technological devices, for what specific purposes, in what sorts of locations, and in what kinds of social and environmental supports?	Descriptive
3. How does the use of technology support mastering expected outcomes stated in the five goals of the National Standards for learning Japanese?	Repeated Measures Analysis of Variance (RANOVA)
4. What relationships are observed in students' self-assessed mastery level of the five goals of the National Standards and the four metrics indicating the extent of students' use of technology?	Pearson Product-moment correlation
5. What most motivates students to use technology out of these three areas – language learning, cultural acquisition, or social networking?	Friedman Test Wilcoxon Ranks Test

Chapter 4

Results

In this chapter, the results and findings from data analyses were presented. First, the demographic data were presented. Then, the results and findings for each research questions were presented along with descriptive and inferential analyses in tables.

The purpose of this study was to examine how college students can be supported to learn Japanese language effectively and to be exposed to culture by utilizing technological tools. This study was conducted to address the following five research questions:

1. How comfortable do students feel in using technology to learn Japanese and how is that comfort expressed in terms of (a) the time students invest in using the technology and (b) changes in their orientation in learning the language?
2. With respect to learning Japanese, with what frequency do students use particular technological devices, for what specific purposes, in what sorts of locations, and in what kinds of social and environmental supports?
3. How does the use of technology support mastering expected outcomes stated in the five goals of the National Standards for learning Japanese?
4. What relationships are observed in students' self-assessed mastery level of the five goals of the National Standards and the four metrics indicating the extent of students' use of technology?
5. What most motivates students to use technology out of these three areas – language learning, cultural acquisition, or social networking?

Demographic Data

The participants for this study were 202 students, from freshman to senior year, who were studying Japanese at one four-year-college in the southeastern United States. Out of 202 students, 15 students answered that they have never use any sort of technology to help them learn Japanese, and 17 students skipped answering this question. These participants were excluded from the analysis, and data of 178 participants, who answered that they used technological devices for their Japanese study, were included for an in depth exploration of the positive influences of using technology for mastering Japanese language and culture.

The frequencies and percentages of the participants' demographic details were presented in Table 7. Ethnically diverse, both male and female students, were involved in the study. As shown in Table 7, students' majors varied across several distinct areas, including languages, literature and linguistics (19.7%), computer and information science (7.9%), psychology (7.9%), business (6.2%), and arts, visual, and performing (5.1%). The majority of the students fell within the range of age 18 and 23 – between 18 and 19 (33.1%), between 20 and 21 (27.5%), and between 22 and 23 (20.8%). Students chose to take Japanese for different reasons, and students were asked to choose the top three most important reasons out of 11 options. The frequencies and percentage of each reason were presented in Table 8, along with the sums of the frequencies. Based on the data, the most popular reason for studying Japanese at college was for increasing knowledge of language, culture, and history enhancing, followed by visiting Japan in the future, and improving career opportunities.

Table 7

Demographic Characteristics of Respondents (N = 178)

Characteristic	*f*	%
Gender		
Male	98	55.1
Female	80	44.9
College Major		
Languages, Literatures & Linguistics	35	19.7
Computer & Information Science	14	7.9
Psychology	14	7.9
Business	11	6.2
Arts, Visual & Performing	9	5.1
Others	95	53.0
Age		
Younger than 18	1	0.6
18 to 19	59	33.1
20 to 21	49	27.5
22 to 23	37	20.8
Older than 23	32	18.1
Racial/Ethnic		
American Indian/Alaskan Native	3	1.7
Asian or Pacific Islander	12	6.7
Black, African-American	53	29.8
Hispanic, Latino	6	3.4
White	88	49.4
Multi-Racial	13	7.3
Other	3	1.7
Native English Speaker		
Yes	169	94.9
No	9	5.1
Overall Grade Point Average		
Lower than 2.0	5	3.0
Between 2.0 and 2.5	19	10.7
Between 2.6 and 2.9	38	21.3
Between 3.0 and 3.5	66	37.1
Greater than 3.5	50	28.1

Table 8

Reasons for Taking Japanese Courses at the University (N = 178)

Reasons		Most important reason		Second most important reason		Third most important reason		Total
		f	%	*f*	%	*f*	%	%
a.	I need to meet a foreign language requirement.	22	12.4	14	7.9	16	9.0	29.3
b.	I want to communicate with family members and friends who speak Japanese.	15	8.4	11	6.2	5	2.8	17.4
c.	I plan to become a resident of Japan one day.	16	9.0	13	7.3	10	5.6	21.9
d.	I am planning to visit Japan in the near future.	25	14.0	21	11.8	36	20.2	46.0
e.	I hope to continue my studies or do research at a Japanese college or university.	8	4.5	8	4.5	10	5.6	14.6
f.	I intent to improve my job or career opportunities.	33	18.5	24	13.5	18	10.1	42.1
g.	I want to teach the Japanese language.	3	1.7	8	4.5	5	2.8	9.0
h.	I want to be able to access materials that are only published in Japanese.	6	3.4	13	7.3	9	5.1	15.8
i.	I want to increase my general knowledge of Japanese language, culture, and history.	31	17.4	40	22.5	27	15.2	55.1
j.	I want to use Japanese to help me learn other Asian languages.	2	1.1	4	2.2	12	6.7	10.0
k.	I want to enhance my enjoyment of Japanese music, film, TV shows, games, and food.	15	8.4	20	11.2	24	13.5	33.1

Data Analyses

Research question 1. How comfortable do students feel in using technology to learn Japanese and how is that comfort expressed in terms of (a) the time students invest in using the technology and (b) changes in their orientation in learning the language?

Question 1 was designed to explore students' attitudes and comfort levels toward the use of technology, and to examine how students change their orientation for learning Japanese through the use of technology. Items and percentages regarding the comfort level of using technology, hours of the use of technology per week, length of average session, and increased dedication and confidence by using technology were presented in Table 9. As shown in Table 9, fewer than 15% of the students surveyed expressed not at all comfortable, very slight extent, or slight extent comfort with using technology for purposes of learning Japanese. As for the remainder, a little more than one-third expressed moderate comfort (34.7%), about one-fourth expressed a high level of comfort (23.9%) and an additional quarter expressed a very high level of comfort (26.7%).

Consistent with these findings were students responses regarding the frequency and duration of technology use. With respect to frequency, the most common answer provided by students was one hour per week (28.2%), followed by three hours per week (21.5%), and two hours per week (17.5%). At the extremes, some students claimed to use technology for more than six hours to study Japanese (15.8%). As to the length of time each session that students devoted to learning Japanese with technology, slightly less than half (48.6%) suggested that the time invested was less than one hour, while about a little less than half placed their level of investment at one to two hours (45.8%) or more than three hours (5.1%).

Commensurate with the time that they had invested and general level of comfort they expressed, about 60% of the students surveyed indicated that using technology had not only made them more “dedicated” Japanese language learners either to a moderate (34.1%), great (18.8%), or very great extent (6.3%), but also had made them more “confident” as Japanese language learners either to a moderate (40.9%), great (18.8%), or very great extent (4.5%).

Table 9

Characteristics of Respondents Relevant to Using Technology for Japanese Language Learning

Characteristic	*f*	%
Level of Comfort Using Technology to Learn Japanese		
Not at all, Very Slight, or Slight Extent	26	14.8
Moderate Extent	61	34.7
Great Extent	42	23.9
Very Great Extent	47	26.7
Number of Hours Per Week Using Technology to Learn Japanese		
One	50	28.2
Two	31	17.5
Three	38	21.5
Four	17	9.6
Five	13	7.3
Six or more	28	15.8
Length of Average Session Using Technology to Learn Japanese		
Less than One Hour	86	48.6
Between One and Two Hours	81	45.8
More than Three Hours	9	5.1
I never use technology for this purpose	1	0.6
Increase in Confidence about Learning Japanese, Given Technology		
Not at All Affected	24	13.6
Very Slight Extent	19	10.8
Slight Extent	29	16.5
Moderate Extent	60	34.1
Great Extent	33	18.8
Very Great Extent	11	6.3
Increase in Confidence about Learning Japanese, Given Technology		
Not at All Affected	17	9.7
Very Slight Extent	11	6.3
Slight Extent	35	19.9
Moderate Extent	72	40.9
Great Extent	33	18.8
Very Great Extent	8	4.5

In order to find the relationship among the comfort level of using technology and the length of using it, increasing dedication for studying Japanese, and enhancing confidence, the Pearson product-moment correlation coefficient was used as presented in Table 10. As it is shown, comfort level was related to students' using technology longer, dedication, and confidence. The strongest correlation was found between the comfort level of using technology and the confidence as a Japanese language learner.

Table 10

Correlations between Comfort Level and the Length of Using Technology, Extent of Dedication, and Extent of Confidence

Means of Standard by Sum of Usage	Length	Dedication	Confidence
Extent of comfort using technology to learn Japanese	0.20**	0.39**	0.43**

**$p < .01$.

Research question 2. With respect to learning Japanese, with what frequency do students use particular technological devices, for what specific purposes, in what sorts of locations, and in what kinds of social and environmental supports?

For question 2, item frequencies and percentages pertinent to four measures of student engagement in using technology to learn Japanese were presented in Tables 11 through 14. To summarize the level of engagement demonstrated, means and standard deviations were computed for each of the four metrics, along with the corresponding item-level statistics, and they were presented in Table 4 (for devices), Table 5 (for purposes), Table 6 (for places), and Table 7 (for supports).

As indicated in Table 11, students used an average of between two and three technological devices for learning Japanese (M = 2.57, SD = 1.24), with the most frequently used ones being computers (95.5%), smartphones (62.9%), iPods or MP3 players (28.7%), game consoles (26.4%), and iPads or tablets (22.5%). Despite the increasing availability of many electronic texts and textbooks, eBook readers (7.9%) seemed not to be popular among college students.

Table 11

Frequencies and Percentages Concerning Use of Particular Technological Devices for Learning Japanese

Technological Devices Used	Used		Not Used	
	n	*%*	*n*	*%*
a) Personal Computer or Laptop Computer	170	95.5	8	4.5
b) Netbook	11	6.2	167	93.8
c) Game Console	47	26.4	131	73.6
d) Smartphone	112	62.9	66	37.1
e) Ipad or Tablet	40	22.5	138	77.5
f) Ipod or MP3 player	51	28.7	127	71.3
g) ebook reader	14	7.9	164	92.1
h) Other device/app	12	6.7		
Averaged Sum of Devices Used	M = 2.57		SD = 1.24	

Of the 14 named purposes for using technology to learn Japanese (see Table 12), students cited an average of five to six purposes (M = 5.46, SD = 2.60), with the most frequent being to learn Japanese vocabulary (79.8%), to use online dictionaries (67.4%), to practice writing (65.2%), to study grammar (65.2%), and to use online translation tools and applications (57.3%).

Table 12

Frequencies and Percentages Concerning Particular Purposes for Using Technological Devices to Learn Japanese

Purposes for Using Technology	Yes		No	
	n	%	*n*	%
a) To read Japanese text	94	52.8	84	47.2
b) To practice writing (Hiragana, Katakana, and Kanji)	116	65.2	62	34.8
c) To study Japanese grammar	116	65.2	62	34.8
d) To learn Japanese vocabulary	142	79.8	36	20.2
e) To use Japanese online dictionaries	120	67.4	58	32.6
f) To use browser add-ons (like Rikaichan)	16	9.0	162	91.0
g) To play Japanese learning games	52	29.2	126	70.8
h) To communicate online with other Japanese learners or native speakers	54	30.3	124	69.7
i) To find information and resources	81	45.5	97	54.5
j) To listen to Japanese online radio, pod castings, etc.	56	31.5	122	68.5
k) To see Japanese online news and visuals	64	36.0	114	64.0
l) To work with others in an online community (Wiki, Google, etc.)	23	12.9	155	87.1
m) To use online translation tool and applications	102	57.3	76	42.0
n) To keep in touch with Japanese friends	47	26.4	131	73.6
o) Other uses (please specify)	5	2.8	173	97.2
Averaged Sum of Purposes Used	$M = 5.46$		$SD = 2.60$	

In terms of the places indicated in Table 13 where students employed technology to learn Japanese ($M = 3.71$, $SD = 1.84$), almost all students mentioned their homes (95.5%), distantly followed by Japanese class itself (62.9%), any public place where there was WiFi access (52.2%), and computer labs on campus (51.1%). Consistent with this ubiquity of access points and as shown in Table 14, some 86.5%

of respondents indicated that a major "support" for their using technology to learn Japanese was because "technology is all around us." Citing on average between 3 and 4 such supports ($M = 3.57$, $SD = 1.88$), students mentioned "efficiency" (66.3%) and intrinsic "enjoyment" (61.2%) as two other factors encouraging their use of technology for Japanese language learning (see Table 14).

Table 13

Frequencies and Percentages Concerning Particular Places Where Technological Devices are Used to Learn Japanese

Places Where Technology is Used	Yes		No	
	n	*%*	*n*	*%*
a) In Japanese class	112	62.9	66	37.1
b) At my home	170	95.5	8	4.5
c) At a friend's or relative's home	46	25.8	132	74.2
d) In a campus computer lab	91	51.1	87	48.9
e) In a language learning lab	61	34.3	117	65.7
f) In the campus library	73	41.0	105	59.0
g) In a public library	11	6.2	167	93.8
h) Any public place where there is WiFi access	93	52.2	85	47.8
i) Other places not mentioned (please specify)	3	1.7	175	98.3
Averaged Sum of Places Used	$M = 3.71$		$SD = 1.84$	

Table 14

Frequencies and Percentages Concerning Particular Supports for Using Technological Devices to Learn Japanese

Supports for Using Technology	Yes		No	
	n	*%*	*n*	*%*
a) Technology is all around us--it's readily accessible.	154	86.5	24	13.5
b) Technology makes learning Japanese more fun.	87	48.9	91	51.1
c) Technology helps me learn Japanese more efficiently.	118	66.3	60	33.7
d) Technology increases my motivation for learning Japanese	57	32.0	121	68.0
e) Technology is just something I enjoy using in general	109	61.2	69	38.8
f) Technology makes it easier to stay abreast of what's going in Japanese society/culture	58	32.6	120	67.4
g) Technology keeps me in closer touch with Japanese friends	41	23.0	137	77.0
f) Other supports not mentioned (please specify)	4	2.2	174	97.8
Averaged Sum of Supports	*M* = 3.57		*SD* = 1.88	

Research question 3. How does the use of technology support mastering expected outcomes stated in the five goals of the National Standards for learning Japanese?

Students were asked about the extent to which technology enabled them to achieve eleven objectives pertinent to the five goals of the National Standards for learning Japanese: Communication, Cultures, Connections, Comparisons, and Communities. For each of the "5 C's" of foreign language education, means and standard deviations were computed across items (see Table 15), and a Repeated Measures Analysis of Variance (RANOVA) was employed to whether differences in mastery levels were observed (see Table 16).

As shown in Table 16, the test result for mean differences in self-assessed mastery level was highly significant ($\lambda = 0.60$, $F(4, 172) = 29.28$, $p < .001$, $\eta_p^2 = 0.41$). Of the ten follow-up comparisons, seven proved to be statistically significant. As also indicated in Table 15, the "Comparisons" scale mean ($M = 4.04$, $SD = 0.74$) proved to be significantly higher than other four means observed for "Communication" ($M = 3.60$, $SD = 0.78$), "Cultures" ($M = 3.53$, $SD = 0.89$), "Connections" ($M = 3.58$, $SD = 0.80$), and "Communities" ($M = 3.73$, $SD = 0.82$) scales. The "Communities" scale mean proved also to be higher than the mean observed for the "Communication," "Cultures," and "Connections" scale.

Table 15

Scale and Item Means and Standard Deviations for Student Self-Assessed Mastery of the Five Goals of the National Standard through the Use of Technology

Scales and Items	*M*	*SD*
Communication Scale Mean (α = 0.75)	3.60	0.78
a. Hold two-way conversations in Japanese to exchange information or express feelings.	3.37	1.02
b. Understand and interpret written and spoken Japanese on a variety of topics.	3.82	0.91
c. Present information, concepts, and ideas in Japanese to a listening or reading audience.	3.63	0.93
Cultures Scale Mean (α = 0.85)	3.53	0.89
d. Relate Japanese cultural perspectives to Japanese customs and behavior patterns.	3.60	0.95
e. Relate Japanese cultural perspectives to Japanese works of art and other of Japan's cultural products.	3.45	0.97
Connections Scale Mean (α = 0.66)	3.58	0.80
f. Acquire knowledge of other disciplines through materials written or spoken in Japanese.	3.51	0.92
g. Gain fresh perspectives on society and culture by engaging materials unique to the Japanese worldview.	3.65	0.93
Comparisons Scale Mean (α = 0.77)	4.04	0.74
h. See similarities and differences between Japanese culture and my native culture.	4.02	0.84
i. See similarities and differences between the Japanese language and my own native language.	4.06	0.81
Communities Scale Mean (α= 0.45)	3.74	0.82
j. Make new acquaintances among Japanese native speakers and others wishing to learn more about Japan and its language.	3.31	1.15
k. Use Japanese for my personal enjoyment and enrichment.	4.17	0.87

Table 16

Scale and Item Means and Standard Deviations for Student Self-Assessed Mastery of the Five Goals of the National Standards, Using Technology

Scale	1	2	3	4	5
1. Communication Mean		−	−	↓	↓
2. Cultures Mean	−		−	↓	↓
3. Connections Mean	−	−		↓	↓
4. Comparisons Mean	↑	↑	↑		↑
5. Communities Mean	↑	↑	↑	↓	

Note. The multivariate test statistic was highly statistically significant ($\lambda = 0.60$, $F(4, 172) = 29.28$, $p < .001$, $\eta_p^2 = 0.41$). With respect to follow-up contrasts, the (↑) symbol indicates that the mean is significantly different and higher; the (↓) symbol indicates that the mean is significantly different and lower; the (−) symbol indicates that the means are not significantly different.

Research question 4. What relationships are observed in students' self-assessed mastery level of the five goals of the National Standards and the four metrics indicating the extent of students' use of technology?

Presented in Table 17 is a matrix of Pearson product-moment correlations between the mastery levels of the five goals (Communication, Cultures, Connections, Comparisons, and Communities) and the use of technology by four different metrics (Devices, Purposes, Places, and Supports). The strongest correlations observed were between the mean of Comparisons and the sum of Purposes ($r = 0.31$, $p < .001$), followed by the mean of Communities and the sum of Purposes ($r = 0.28$, $p < .001$). While the sum of Devices was linked to the self-assessed mastery of only two items of the National Standards —namely, the mean of Communication ($r = 0.20$, $p < .01$)

and the mean of Communities ($r = 0.20$, $p < .01$) — the sum of Purposes were significantly associated with the mastery of all five goals of the National Standards. Conversely, while the means of the Communication items were significantly and positively linked to all four usage metrics, the mean of the Comparisons scale was significantly linked only to the sum of Purposes identified ($r = 0.19$, $p < .05$) and the sum of Supports cited ($r = 0.31$, $p < .01$).

Table 17

Correlations between Student Self-Assessed Mastery of the Five Goals of the National Standards and Four Metrics of Technology Usage

Mean of Standard by Sum of Usage	Sum of Devices	Sum of Purposes	Sum of Places	Sum of Supports
Mean of Communication Items	0.21**	0.25**	0.27**	0.16*
Mean of Cultures Items	0.12	0.20**	0.19*	0.25**
Mean of Connections Items	0.13	0.16*	0.17 *	0.23**
Mean of Comparisons Items	0.15	0.19*	0.14	0.31**
Mean of Communities Items	0.20**	0.28**	0.20**	0.13

* $p < .05$. **$p < .01$.

Research question 5. What most motivates students to use technology out of these three areas – language learning, cultural acquisition, or social networking?

Students were asked to rank three purposes of using technology in order – language learning, learning culture, or social networking. The Friedman Test was employed to observe the ranks among these three purposes. As shown in Table 18, the analysis showed that language learning was the highest rank, followed by cultural acquisition, and social networking. The Wilcoxon Ranks Test was also used to find

the pairwise differences among three purposes as shown in table 19. The analysis indicated that cultural acquisition was lower than language learning 121 times, and only higher 53 times. Social networking ranked lower than language learning 149 times, and only higher 25 times. Sequentially, social networking was lower than cultural acquisition 139 times, and only higher 35 times. Based on this analysis, students use technology for the purpose of language learning, cultural acquisition, and lastly social networking.

Table 18

Ranks among Language Learning, Cultural Acquisition, and Social Networking

	N	Mean	Std. Deviation
Language Learning	175	2.55	.65
Cultural Acquisition	174	2.10	.66
Social Networking	174	1.34	.63

Table 19

Pairwise Differences among Language Learning, Cultural Acquisition, and Social Networking

		N	Mean Rank	Sum of Ranks
Cultural Acquisition – Language Learning	Negative Ranks	121	86.88	10512.50
	Positive Ranks	53	88.92	4712.50
	Ties	0		
	Total	174		
Social Networking – Language Learning	Negative Ranks	149	92.63	13802.50
	Positive Ranks	25	56.90	1422.50
	Ties	0		
	Total	174		
Social Networking – Cultural Acquisition	Negative Ranks	139	87.28	12132.50
	Positive Ranks	35	88.36	3092.50
	Ties	0		
	Total	174		

Summary of Results

The results of this study revealed that the majority of students feel comfortable using technological devices to learn Japanese, and comfort level is also related to students' using technology longer, dedication, and confidence. Almost all students use computers as a learning tool and the rate of using smartphones is relatively high (62.9%). Other devices such as iPods, iPads or tablets, or game consoles are also used for their study. By utilizing these devices, students learn vocabulary, use online dictionary, practice writing, and study grammar. Students are also able to use these devices not limited at home and in classrooms, but anytime anywhere when WiFi access is available. Students perceive the use of technology as something fun, and see technological devices as tools which allow them the ability to enhance efficiency of learning.

In this study, students' self-assessed mastery levels of the five goals of the National Standards (Communication, Cultures, Connections, Comparison, and Communities) were measured. The results revealed that the use of technology supported students in mastering proposed outcomes, particularly in two goal areas, which were Comparisons and Communities. The relationship between the National Standards and the four metrics of the use of technology (Devices, Purposes, Places, and Supports) were also examined. The strongest correlations were found between the mean of Comparisons and the sum of Purposes, followed by the mean of Communities and the sum of Purposes.

The five goals of the national standards encompassed a variety of reasons for studying a foreign language, and the five goal areas are equally important. The survey questions were created to elicit students' perspectives for foreign language learning and the use of technology. Students ranked the three areas – language learning, cultural acquisition, and social networking – based on their motivations. According to the results, students used technology for language learning, followed by cultural acquisition, and social networking.

Chapter 5

Discussion

The purpose of this study was to examine how college students can be supported to learn Japanese language effectively and to be exposed to culture by utilizing technological tools, such as computers, smartphones, tablets, game consoles, and eBooks. This chapter presented major findings from the results and the conclusions of this study. The pedagogical implications based on the findings and limitations of this study were also addressed, and lastly recommendations for future research were presented.

Discussion of Findings

Research question 1. How comfortable do students feel in using technology to learn Japanese and how is that comfort expressed in terms of (a) the time students invest in using the technology and (b) changes in their orientation in learning the language?

In this study, the students showed strong positive attitudes toward the use of technology. In the survey, 178 out of 202 students (88.1%) answered that they used technological tools when studying Japanese. Out of these 178 students, over 85% expressed moderate, great, or very great extent level of comfort in using technology, and about 60% acknowledged moderate, great, or very great extent increase of their dedication toward learning Japanese. However, time invested for learning Japanese through those devices varied from one hour per week to six or more hours. The majority of students answered one hour (28.2%), two hours (17.5%), and three hours (21.5%).

Also, over 60% of students declared that they increased their confidence about learning Japanese through the use of technology. These findings were congruent with

the fact that students today are digital learners (Morrison, 2012), and that they were motived for learning by using technological devices (Attewell et al., 2009; Sharma & Hannafin, 2007). They tended to accomplish their tasks efficiently when using technology (Grimes & Warschauer, 2008). Nearly all of the students in this study used a computer as a device for learning, and the second most popular device was a smartphone. Today's students are in a networked society, and WiFi accessibility is expanding in today's lives, and anytime anywhere learning is available (Attewell et al., 2009). They used these devices not only at home, but anywhere anytime when they find WiFi access. It is critical for today's mobile students to have access the information in a timely manner (Johnson et al., 2010). Learning does not occur only in a classroom (Singh, 2003), and students increase their autonomy to direct their own learning through the use of technology (Sharma & Hannafin, 2007).

Research question 2. With respect to learning Japanese, with what frequency do students use particular technological devices, for what specific purposes, in what sorts of locations, and in what kinds of social and environmental supports?

In this study, the most frequent devices used by students were computers and smartphones, and this result corresponded to the findings in previous research (Dahlstrom & diFilipo, 2013; Pew Research Center, 2014). Students in the U.S. use different kinds of devices for a variety of purposes, including for communication and collaboration, teaching and learning, research and creative inquiry, and social networking (Grimes & Warschauer, 2008; Johnson et al., 2010; Pew Research Center, 2013a). However, the majority of students in this study used technological devices for limited activities related to enhancing skills and abilities for language learning, which are called foundational literacies (New South Wales Department of Education and Training, 2010). They used technology for learning vocabulary, using online

dictionaries, practicing Japanese writings, studying grammar, and using online translators. Such activities are included in one of the three categories, which are necessary to become autonomous learners (Chiu, 2012). However, in order to enhance students' autonomy, they need to be exposed to broader opportunities to enhance their higher order thinking skills. Yet, through this study, it was unclear if students' thinking skills were developed through these online activities.

Also, only a limited number of students utilized technological devices to adopt new literacies of the future, such as communicating, working, and sharing information with others. Lentz (2013) introduced activities which allowed students to communicate and work in the community beyond the classroom by using technology. However, these activities were all planned by the teacher, and students did not voluntarily participate in such activities. Students also may not be motivated to participate in activities, where communication purposes are different from their actual daily lives (McBride, 2009). To become pure life-long learners, students should have initiatives and motivations for each activity, but in this study, these students' usage of technology for communication and collaboration purposes were low. It appeared that teachers' extended support is necessary to support students in developing these skills outside of the classroom.

The most common places where students used technological devices in this study was their homes, followed by Japanese classes, and any public places where there WiFi access was available. Research supported that technological tools have power to go outside of the classroom, and create opportunities for students to experience language and culture (Attewell et al., 2009; Ducate & Lomicka, 2013; Lentz, 2013). These students used technologies both inside and outside of classrooms,

and higher percentage of the use of technology in classrooms showed that educators also have positive attitude for accepting technological devices as learning tools.

Students in this study answered that they use technology because it is readily accessible. The higher percentage of students' use of technological devices both inside and outside of the classroom is related to current societal changes and availability of accessing WiFi and Internet anytime anywhere through a variety of technological tools (Tokuda, 2012). When students have such access to technology, their learning and development can be enhanced.

Research question 3. How does the use of technology support mastering expected outcomes stated in the five goals of the National Standards for learning Japanese?

In the current study, Comparisons standard appeared to be the most effective area mastered by these students through the use of technology, and this result was congruous with the report by ACTFL (2011). However, it was surprising to find that the second most achieved area was the Communities standard, based on students' self-assessment regarding their perceived gains of the five goals of the National Standard. Based on the ACTFL research, Communities standard was considered to be the most difficult standard to be implemented in classes, and this current result did not support the ACTFL report (2011). However, the current study was based on students' self-assessment, and it was unclear if this study truly measured students' actual gains in these focused areas. Nevertheless, the result indicated that students utilize technological tools to enhance mastery levels in the areas of Comparisons and Communities, and they realized and perceived changes in these two areas higher than other areas. Thus, it could be predicted that implementing technologies as learning activities might expand students' learning opportunities and exceed the boundaries

and limitations of class settings. These observations were supported by Foreman (2003), stating that technology has potential to allow students to simulate and experience the real world.

The five goals of the National Standards are equally important to develop students' communicative competence to use the target language appropriately in different situations and purposes (National Standards in Foreign Language Education Project, 2006; Shrum & Glisan, 2010). To be able to be truly fluent in the target language, students need to master sociolinguistic aspects and non-verbal communication, in addition to linguistic features. However, some standards are not included in class sessions because of limited allocation of time in the classroom. Out of the five standards, Communities, has been referred to as the "Lost C," and teachers have difficulties to implement Communities goals in class activities (ACTFL, 2011).

Research question 4. What relationships are observed in students' self-assessed mastery level of the five goals of the National Standards and the four metrics indicating the extent of students' use of technology?

The results of the study showed positive correlation between the mastery levels of the five standards (Communication, Cultures, Connections, Comparisons, and Communities) and the use of technology by four metrics (Devices, Purposes, Places, and Supports). This result appeared to indicate strong possibilities of utilizing technological tools to advance the mastery levels of the five goals of the National Standards. The Communication standard had a statistically significant correlation with all four metrics. The students used technological devices most effectively for communication purposes. However, the use of technology to hold two-way conversation, such as communicating with other Japanese learners or native speakers, keeping in touch with Japanese friends, and working with others in an online

community, was lower than other communication purposes, including understanding and interpreting written and spoken language and presenting information in a target language. It seemed that interpersonal communication was the hardest task in online environments out of three modes of communication – Interpersonal, Interpretive, and Presentational.

Communication and collaboration are part of the important skills named by the 21st century skills, and the results of this study did imply difficulties of cultivating interpersonal communication skills in a foreign language in online environments. Previous research (Ducate & Lomicka, 2013; Lentz, 2013; Throne, 2008; Warschauer, 2002) indicated that utilizing technologies expanded students' opportunities for additional communication and personal and social development. However, these discussions and communications might be led by teachers, and students may need additional support to activate these areas.

Research question 5. What most motivates students to use technology out of these three areas – language learning, cultural acquisition, or social networking?

Based on the results of this study, it was found that students were most interested in using technology for language learning, but they did not utilize technological devices to master the other two areas, cultural acquisition and social networking. In the statistical analysis, there was not a significant difference between the means of language learning and cultural acquisition, but the mean of social networking was lower than both language learning and cultural acquisition. The difference in mean scores between language learning and social networking was 1.21 on a scale of a maximum of 3 points. The difference in mean scores between cultural acquisition and social networking was 0.76. These results indicated that technology use for social networking was relatively low. In the survey, students were asked their

reasons for studying Japanese, and the most popular answer was to increase their general knowledge of Japanese language, culture, and history, and the second most popular answer was to improve their career opportunities. However, communicating with family members and friends was also low. These results corresponded with statements by McBride (2009) that students may not be interested in class activities because the form of computer-mediated communication employed is different from ones they are accustomed to using.

As stated in the National Standards, mastering a target language is not a one-dimensional effort, and all components, such as mastering linguistic aspects, learning about culture, and communicating with people in a community, are all important and necessary for students to become well-rounded language learners (National Standards in Foreign Language Education Project, 2006). However, the results of this study indicated that students did not see the importance of social networking as the language educators had planned in the National Standards. Students used technological devices to master linguistic features, such as learning vocabulary, using online dictionaries, practicing Japanese characters, and studying grammar. Technology used in this way is didactic, substituting technological tools for teachers or course materials (Wenglinsky, 2005). Thus, this way of using technology does not support students in enhancing their critical thinking skills, communication and collaboration skills, or expanding their cross-cultural awareness.

Social networking activities of youth today are related to more negative aspects such as having health problems and causing isolation from adults and relatives (Strom & Strom, 2012). In order to empower of the use of social networking, activities such as learning a language, interacting with others, and having

international pen pals with mutual interests were suggested by Strom and Strom (2012).

The 21st century skills map shows how foreign language education can be promoted along with enhancing students' 21st century skills (Partnership for 21st Century Skills, 2011), and technology has been integrated in programs and activities to support students' development. In order for students to enhance their competitiveness in a multicultural society, they need to learn skills such as communication, collaboration, and critical thinking skills, and educators need to deliberate new ideas and authentic plans to expand educational opportunities for students by utilizing technological power.

Conclusions

Students are exposed to a variety of technological devices in their daily lives, and technology has been implemented in different subject areas for educational purposes as teaching and learning tools. Through the previous research (Grimes & Warschauer, 2008; Kern & Warschauer, 2000; Maximizing the impact: The pivotal role of technology in a 21st century education system, 2007; New South Wales Department of Education and Training, 2009), it has been proven that technology can be used to enhance students' productiveness, quality of work, and development of 21st century skills which are necessary to become contributive citizens in today's global society.

According to this study, students' comfort levels and their perceptions about using technological devices as learning tools for Japanese language and cultural learning were examined. This study also explored how American college students were benefited by the use of technology to master the five goal areas of the National Standards. The results revealed that almost all students felt comfortable using

technological devices, and its use was related to their increased confidence and dedication. Also, technology implementation exceeded the boundaries of classrooms to meet expectations stated in the National Standards. In real world applications, technology, especially mobile devices, is actively used for communication purposes. However, in this study, it was found that students' main purpose of using technology was still limited to developing fundamental literacy, such as reading and writing, and students were not actively involved in social networking activities in their target language.

Authentic and meaningful exposures to a target language and culture are critical for students to become well-rounded language learners. The findings from this study suggested that utilizing technological devices can play a significant role for enhancing students' confidence and dedication, expanding boundaries of communities, and providing broader and authentic opportunities for students to experience a target language and culture at first hand. By integrating technology in activities both inside and outside of the classrooms, enriched language and culture experiences come available for students.

Implications

Based on the findings of this study, several implications can be drawn and used to enhance quality of Japanese language and cultural education in the United States.

1. Through this study, it was found that students were motivated to learn Japanese by using technological devices. To meet students' expectations and provide them meaningful learning opportunities, educators also need to be familiar with new ways of implementing technology in education.

2. Students indicated that they increased their dedication and confidence in learning Japanese through the use of technology. Even though using technology itself does not transform contents what need to be learned, utilizing technological devices can be a motivator for enhancing students' internal enthusiasm. Thus, more technology-related activities inside and outside of the classroom should be planned.

3. The percentage of smartphone holders is increasing, and students use mobile devices as a learning and communication tool. Such devices should be fully utilized in the classroom as well to support their development.

4. Mastering the expected goals of the National Standards and the use of technology are highly correlated, including the Community standard, which is considered to be the hardest standard to implement in class activities. Based on students' self-assessment, they perceived gains in each goal area through the use of technology. Using technology can promote students' abilities to learn about not only the Japanese language but also the culture and multilingual communities at home and around the world, and that is beneficial to students in mastering the Communities standard set forth by the National Standards.

5. A variety of online materials and programs are available to enhance students' cultural knowledge and to advocate social networking; however students are not actively participating in these activities. Students need opportunities, purposes, and motivations to communicate with Japanese speakers outside of the class through e-mail, online chat, and actual conversation via Skype. Making connections with native speakers can be the hardest hurdle for students. Instructors need to offer students ample opportunities to interact with exchange students from Japan in face-to-face environments. To enhance students' social networking, such scaffolding activities are necessary.

Limitations

There are a number of limitations derived from this study that need to be considered before generalizing the findings to other populations of Japanese language and cultural learning:

1. Students' participation in this study was voluntary, and because of that reason, some unserious answers were found in the survey. In order to keep the quality of study, asking students to take a survey under someone's supervision is needed.

2. Students' mastery levels of the five goals of the National Standards were based on their self-assessment. However, these were not the direct measurements of their actual gains, and it should be stated that it was not clear how much technology supports students in mastering these goal areas.

3. The results of this study did not reveal how well students mastered the goal areas purely through the use of technology. Some teachers may not have included all of the five goal areas of the National Standards in their lessons, and teachers' quality and effectiveness can affect students' perception of gains of the National Standards.

4. It is unclear if all of the research questions enlighten the important aspects relating to the use of technology for the study of Japanese language and culture.

5. The highest percentage (33.1%) of students who participated in this study was in the freshman year (between age 18-19). These students may have just started taking Japanese, and they did not have enough knowledge and skills to utilize technological tools for their language and cultural learning, including navigating Japanese websites to find information and communicating with native Japanese speakers online.

Recommendations

Based on the results and findings of this research, several recommendations for future studies were presented as follows:

1. Japanese language is studied all over the world, and the largest population comes from East Asia. To truly understand the effectiveness of the technology implementation in Japanese study, research should be conducted in such countries to determine how using technology can support students around the world.

2. A great number of students claimed that they use technological devices for literacy development, such as learning vocabulary, using dictionaries, practicing writing, studying grammar, and reading Japanese texts. By using this information, new studies can be created to measure the progress of students' literacy development.

3. It will be beneficial to examine current educators' levels of knowledge, skills, and stages regarding technology implementation to meet students' needs and expectations.

4. It is recommended that a study of foreign language instructors' use of technology should be conducted to see how technology is implemented in education, either through a constructivist approach (technology as learning tools) or in a didactic way (technology as a substitute for a teacher or materials). It would also be interesting to conduct research to determine the relationship between the way technology is used and students' development of higher order thinking skills.

5. It would be beneficial to compare two groups of students' growth in their mastery levels of Japanese language and culture; one group with instructions and activities through the use of technology, and the other group with instruction and activities without the use technology as teaching and learning tools.

6. It would be helpful if future studies are more inclusive, where results are not limited to one state.

7. Cross-cultural studies can contribute to the field of language learning. Working with highly ranked countries in student achievement in Japanese might enhance instructors' effective teaching skills and methods.

8. As shown by the collected data in Table 8, each student has different reasons and motivations for learning Japanese language and culture. These differences cannot be fully measured and interpreted by using only numerical data through statistical analyses. In order to delve to gauge individual differences, implementing qualitative research methods will be beneficial to conduct an in-depth research.

9. Students have different levels of motivation for learning. In this study, motivation factors were not included in the analysis. This study revealed that the longer they use technology, the more they increase motivation and dedication. It might be useful to investigate how their level of motivation is related to students' mastery level of the five goals of the National Standards.

Personal Reflection

I love foreign languages and cultures. I grew up in Japan, and started to study English as part of compulsory education since junior high school, and English was my favorite subject. After completing my master's degree in foreign language education, I obtained an opportunity to study my third language, Spanish, in Mexico. Through my personal experiences of learning different languages and cultures, my life has been enriched with a variety of perspectives, information, and knowledge.

I have a strong passion for teaching languages, especially my native language Japanese. Learning languages is not simple, and it is a long journey to master target languages and cultures. As a language learner, I have experienced having frustrations, conquering my weakness, and encountered difficulties in reaching the next level. As a language educator, my primary goal is to support students in meeting their needs and to provide them fun, enjoyable, and exciting learning opportunities so that they can enhance their fluency. The best way to develop their competence and skills derives from their own desire and motivation for learning. Today in a technology-enhanced society, students use technological devices as communication tools as well as learning tools, and I started to have interests in learning about educational technology to improve students' motivation and positive learning outcomes.

Through the coursework of my doctoral degree, I learned how to conduct research by using statistical analysis. The process of conducting research was one of the greatest gains I obtained through this educational journey. Through this research, I learned what devices, when, where, and why students use technology, and how the use of technology supported them in understanding Japanese language and culture. Japanese is one of the most difficult languages to master, and students need a strong passion and motivation for learning to reach true fluency. Utilizing technological

devices can be used to fulfill these requirements. Even though the use of technology does not transform the goal of what is to be learned, it makes students more motivated and dedicated. Through the use of technology, students can also be exposed to authentic language and culture, which is limited in classrooms. Languages and cultures are not something that students just learn, but they need to experience, use, and practice first-hand.

This research helped me to grow as an educator and a researcher academically and professionally. Through the process of conducting research, analyzing data, and interpreting results, I have gained tremendous knowledge and skills, and these experiences help me continue to develop. As an educator and a researcher, my journey for investigating effective approaches of mastering the Japanese language and culture continues.

Learning different languages and cultures can open the door for students in different fields, expand their potentials, and enrich their lives. I want my students to enjoy learning foreign languages and cultures so that their personal experience exceeds studying Japanese as just a school subject. About 3.99 million students study Japanese in 136 countries worldwide, as for the research in 2012. My dream is that one day all of these students can communicate and collaborate with each other in Japanese across countries through the use of technology. To support students' development, I will continue to enhance my knowledge, skills, and expertise.

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Appendix A

Online Questionnaire on Technology and Japanese Language Learning

Technology and Japanese Language Learning U of M version:copy

Welcome Page

Welcome!

And thank you for responding to our request for survey participants.

The following survey has two main purposes: (1) to measure the extent to which students use technological tools to help them learn Japanese and (2) to determine the ways in which this usage affects their learning.

In PART ONE of the survey, you will asked to provide information about you as a student in general and about you as Japanese language learner in particular.

If you have used technology to help you learn Japanese, you will be directed to PART TWO of the survey in which you will be asked about the nature and extent of your usage.

In PART THREE of this survey, you will be asked follow-up questions about how this usage may have affected your disposition to learn Japanese and whether or not this usage has helped you achieve specific academic outcomes.

Page 1

Technology and Japanese Language Learning U of M version:copy

Informed Consent

Please acknowledge formally your agreement to participate in this study.

Participation in this survey is voluntary and your answers will be kept strictly confidential.

If you agree to participate, please check the "agree" response below. If you wish to drop out, please check the "decline" button to exit the survey immediately.

◯ I understand these conditions and I agree to participate. Go to the survey.

◯ I understand these conditions but I don't wish to participate. I decline.

Page 2

Technology and Japanese Language Learning U of M version:copy

PART ONE: Demographic Questions, Page I

Please respond to the following questions about your gender and your major.

1. What is your gender?

- ◯ Male
- ◯ Female

2. Which of the following represents your current academic major? (check one)

- ◯ Agriculture and Related Sciences
- ◯ Architecture and Planning
- ◯ Area, Ethnic, Cultural, and Gender Studies
- ◯ Arts, Visual and Performing
- ◯ Biological and Biomedical Sciences
- ◯ Business
- ◯ Communication and Journalism
- ◯ Communications Technologies
- ◯ Computer and Information Sciences
- ◯ Construction Trades
- ◯ Education
- ◯ Engineering
- ◯ Engineering Technologies
- ◯ English Language and Literature
- ◯ Family and Consumer Sciences
- ◯ Health Professions and Related Clinical Sciences
- ◯ History
- ◯ Languages, Literatures, and Linguistics
- ◯ Law and Legal Studies
- ◯ Liberal Arts & Sciences, General Studies, Humanities
- ◯ Library Science
- ◯ Math and Statistics
- ◯ Mechanic and Repair Technologies
- ◯ Military
- ◯ Multi/Interdisciplinary Studies
- ◯ Natural Resources and Conservation
- ◯ Parks, Recreation, and Fitness
- ◯ Personal and Culinary Services
- ◯ Philosophy and Religion
- ◯ Physical Sciences
- ◯ Precision Production Trades
- ◯ Psychology
- ◯ Public Administration and Social Services
- ◯ Science Technologies
- ◯ Security and Protective Services
- ◯ Social Sciences
- ◯ Theological Studies and Religious Vocations
- ◯ Transportation and Materials Moving
- ◯ Other major (please specify)

Page 3

Technology and Japanese Language Learning U of M version:copy

PART ONE: Demographic Questions, Page 2

Please respond to the following questions about your age, ethnicity, and native language.

3. How old are you? (use the drop-down box and check one answer)

4. What is your racial or ethnic identification?

- ◯ American Indian/Alaskan Native
- ◯ Asian or Pacific Islander
- ◯ Black, African-American
- ◯ Hispanic, Latino
- ◯ White
- ◯ Multi-Racial
- ◯ Other ethnicity (please specify)

5. Is English your native language?

- ◯ Yes
- ◯ No (if "No", please specify the language in the space provided below)

Technology and Japanese Language Learning U of M version:copy

PART ONE: Questions about Your Study of Japanese, Page 1

Please tell how long you've been studying Japanese, your credit hours, and the number of hours you prepare for class.

6. How long have you been studying Japanese?

- ◯ Less than one year
- ◯ Between one and two years
- ◯ Between two and three years
- ◯ More than three years

7. For how many credit hours are you enrolled in Japanese courses THIS semester?

- ◯ One to three credit hours
- ◯ Four to six credits hours
- ◯ Seven to nine credits
- ◯ More than nine credit hours
- ◯ Not enrolled in a Japanese course this semester

8. On average, about how many hours each week do you study or prepare for your Japanese class(es)?

- ◯ Less than one hour
- ◯ One to five hours
- ◯ Six to ten hours
- ◯ Eleven to fifteen hours
- ◯ Sixteen to twenty hours
- ◯ More than twenty hours

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PART ONE: Questions about Your Study of Japanese, Page 2

Provide three reasons why you are studying Japanese.

9. Which of the following represent the THREE MOST IMPORTANT reasons you are taking Japanese courses at the university? (choose three only)

	Most Important Reason	Second Most Important Reason	Third Most Important Reason
a. I need to meet a foreign language requirement.	◯	◯	◯
b. I want to communicate with family members and friends who speak Japanese.	◯	◯	◯
c. I plan to become a resident of Japan one day.	◯	◯	◯
d. I am planning to visit Japan in the near future.	◯	◯	◯
e. I hope to continue my studies or do research at a Japanese college or university.	◯	◯	◯
f. I intend to improve my job or career opportunities.	◯	◯	◯
g. I want to teach the Japanese language.	◯	◯	◯
h. I want to be able to access materials that are only published in Japanese.	◯	◯	◯
i. I want to increase my general knowledge of Japanese language, culture, and history.	◯	◯	◯
j. I want to use Japanese to help me learn other Asian languages.	◯	◯	◯
h. I want to enhance my enjoyment of Japanese music, film, TV shows, games, and food.	◯	◯	◯

Other reason (please specify reason and level of importance)

Technology and Japanese Language Learning U of M version:copy

PART ONE: Questions about Your Study of Japanese, Page 3

Please describe your level of success in learning Japanese.

10. On average, what have your grades been like in your Japanese classes?

- ◯ A+
- ◯ A
- ◯ A-
- ◯ B+
- ◯ B
- ◯ B-
- ◯ C+
- ◯ C
- ◯ C-
- ◯ D+
- ◯ D
- ◯ D- to F
- ◯ No average grades as yet, this is my first term.

11. To what extent would you say have you mastered the knowledge and skills required in your Japanese courses?

- ◯ Uncertain about what "knowledge and skills" are meant
- ◯ Very low level of mastery
- ◯ Low level of mastery
- ◯ Moderate level of mastery
- ◯ High level of mastery
- ◯ Very high level of mastery

12. On a "four point" system, what is your overall Grade Point Average (G.P.A.)?

- ◯ Lower than 1.0
- ◯ Between 1.0 and 1.5
- ◯ Between 1.6 and 1.9
- ◯ Between 2.0 and 2.5
- ◯ Between 2.6 and 2.9
- ◯ Between 3.0 and 3.5
- ◯ Between 3.5 and 3.9
- ◯ Above 3.9

Technology and Japanese Language Learning U of M version:copy

PART TWO: Using Technology to Learn Japanese, BRANCH PAGE

13. Either in-class or outside of class, have you ever used a technological tool or device of some kind to help you learn Japanese?

◯ Yes, I have used some sort of technology to help me learn Japanese

◯ No, I have never used any sort of technology to help me learn Japanese.

If you answered "NO" as to the use of technology, what are some reasons why?

(use the space below to reply)

Page 8

Technology and Japanese Language Learning U of M version:copy

PART TWO: Questions Concerning Technology Use and Learning Japanese, Page 1

The following question concerns the different types of technological tools or devices you've used to learn Japanese.

14. What kinds of technological tools or devices have you used to learn Japanese? (check all tools that apply).

- [ ] a) Personal Computer or Laptop Computer
- [ ] b) Netbook
- [ ] c) Game Console (e.g., Nintendo DS, Wii, Playstation)
- [ ] d) Smart Phone
- [ ] e) Ipad or Tablet
- [ ] f) Ipod or MP3 player
- [ ] g) ebook reader (e.g., Kindle, Nook)

h) Other devices or "apps" (please specify)

Page 9

Technology and Japanese Language Learning U of M version:copy

PART TWO: Questions Concerning Technology Use and Learning Japanese, Page 2

The following question asks about the different purposes you have with respect to using technology for learning Japanese.

15. Please specify the purpose(s) for which you use such technological tools or devices. (check all purposes that apply)

- [ ] a) To read Japanese text (newspaper, article, website, etc.)
- [ ] b) To practice writing (Hiragana, Katakana, and Kanji)
- [ ] c) To study Japanese grammar
- [ ] d) To learn Japanese vocabulary
- [ ] e) To use Japanese online dictionaries
- [ ] f) To use browser add-ons (like Rikaichan)
- [ ] g) To play Japanese learning games
- [ ] h) To communicate online with other Japanese learners or native speakers (chat, skype, etc)
- [ ] i) To find information and resources
- [ ] j) To listen to Japanese online radio, pod castings, etc
- [ ] k) To see Japanese online news and videos (YouTube videos, Japanese TV news, etc.)
- [ ] l) To work with others in an online community (Wiki, Google docs, etc)
- [ ] m) To use online translation tool and applications.
- [ ] n) To keep in touch with Japanese friends.
- [ ] m) Other uses (please specify)

Page 10

Technology and Japanese Language Learning U of M version:copy

PART TWO: Questions Concerning Technology Use and Learning Japanese, Page 3

The question below asks for the different locations where you have used technology to learn Japanese.

16. In which of the following places have you used technology to help you learn Japanese? (check all places that apply)

- [ ] a) In Japanese class
- [ ] b) At my home
- [ ] c) At a friend's or relative's home
- [ ] d) In a campus computer lab
- [ ] e) In a language learning lab
- [ ] f) In the campus library
- [ ] g) In a public libary
- [ ] h) Any public place where there is WiFi access
- [ ] i) Other places not mentioned (please specify)

Page 11

Technology and Japanese Language Learning U of M version:copy

PART TWO: Questions Concerning Technology Use and Learning Japanese, Page 4

The following questions about how often in an average week you use technology to learn Japanese and the average length of each session.

17a. On average, about how many times a week do you use technology to help you learn Japanese? (use the drop-down box and check one response)

17b. In an average week, about how many total hours do you use technology to help you learn Japanese? (use the drop-down box and check one response)

18. When you use some sort of technology to help you learn Japanese, how long does an average session last? (check one response)

- ◯ Less than one hour
- ◯ Between one and two hours
- ◯ Between three and four hours
- ◯ More than four hours
- ◯ I never use technology for this purpose.

19. To what extent does your Japanese teacher require you to use technology as a part of your Japanese class? (check one response)

- ◯ There is no such requirement in myJapanese class(es)
- ◯ To a Very Slight Extent
- ◯ To a Slight Extent
- ◯ To a Moderate Extent
- ◯ To a Great Extent
- ◯ To a Very Great Extent

Technology and Japanese Language Learning U of M version:copy

PART TWO: Questions Concerning Technology Use and Learning Japanese, Page 5

The following question asks about what personal and social supports you observe that encourage your use of technology for learning Japanese.

20. What encourages you to use technological tools or devices to help you learn Japanese? (check all that apply)

- [ ] a) Technology is all around us--it's readily accessible.
- [ ] b) Technology makes learning Japanese more fun.
- [ ] c) Technology helps me learn Japanese more efficiently.
- [ ] d) Technology increases my motivation for learning Japanese.
- [ ] e) Technology is just something I enjoy using in general.
- [ ] f) Technology makes it easier to stay abreast of what's going in Japanese society/culture.
- [ ] g) Technology keeps me in closer touch with Japanese friends and acquaintances.
- [ ] f) Other supports not mentioned (please specify)

Page 13

Technology and Japanese Language Learning U of M version:copy

PART THREE: Effects of Using Technology on You as a Japanese Language Learn...

The following questions concern the effect of technology on one's technological comfort level, confidence, and persistence as a learner of Japanese.

21. To what extent are you comfortable using technology to learn Japanese? (check one)

- ◯ Not At All Comfortable
- ◯ Very Slight Extent
- ◯ Slight Extent
- ◯ Moderate Extent
- ◯ Great Extent
- ◯ Very Great Extent

22.To what extent has using technology made you more a dedicated student of Japanese? (check one)

- ◯ Not At All Affected My Dedication
- ◯ Very Slight Extent
- ◯ Slight Extent
- ◯ Moderate Extent
- ◯ Great Extent
- ◯ Very Great Extent

23. To what extent has using technology made you more confident as a Japanese language learner? (check one)

- ◯ Not At All Affected My Confidence
- ◯ Very Slight Extent
- ◯ Slight Extent
- ◯ Moderate Extent
- ◯ Great Extent
- ◯ Very Great Extent

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PART THREE: Effects of Using Technology on You as a Japanese Language Learn...

Listed below are eleven academic outcomes related to learning the Japanese language. For each of these outcomes, indicate the extent to which you AGREE or DISAGREE that your use of technological tools--whatever they may be--has helped you achieve that particular outcome.

24. In my study of Japanese, using technology has helped me to . . .

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree.
a. Hold two-way conversations in Japanese (through both oral and written communication) to exchange information or express feelings.	◯	◯	◯	◯	◯
b. Understand and interpret written and spoken Japanese on a variety of topics.	◯	◯	◯	◯	◯
c. Present information, concepts, and ideas in Japanese to a listening or reading audience.	◯	◯	◯	◯	◯
d. Relate Japanese cultural perspectives to Japanese customs and behavior patterns.	◯	◯	◯	◯	◯
e. Relate Japanese cultural perspectives to Japanese works of art and other of Japan's cultural products.	◯	◯	◯	◯	◯
f. See similarities and differences between Japanese culture and my native culture.	◯	◯	◯	◯	◯
g. See similarities and differences between the Japanese language and my own native language.	◯	◯	◯	◯	◯
h. Acquire knowledge of other disciplines through materials written or spoken in Japanese.	◯	◯	◯	◯	◯
i. Gain fresh perspectives on society and culture by engaging materials unique to the Japanese worldview.	◯	◯	◯	◯	◯
j. Make new acquaintances among Japanese native speakers and others wishing to learn more about Japan and its language.	◯	◯	◯	◯	◯
k. Use Japanese for my personal enjoyment and enrichment.	◯	◯	◯	◯	◯

Technology and Japanese Language Learning U of M version:copy

Ranking of Three General Motivators for Technology Use

Please RANK the following three activities that may motivate technology use.

25. Three general activities are said to motivate students' use of technology in foreign language courses. Where "1" means first, "2" means second, and "3" means last, RANK ORDER these three motivators in terms of how important each one is for you:

☐	A. Language Learning
☐	B. Acquisition of Cultural Knowledge
☐	C Social Networking

Technology and Japanese Language Learning U of M version:copy

EXIT PAGE

This page exits the survey!

Thanks for responding to our survey. We appreciate your interest!

To ensure that you receive credit for your responses, use your browser to print out this page.

After doing so, click the "Done" button below and you will be re-directed to the webpage of the Department of Foreign Languages and Literatures at the University of Memphis.

Page 17

Technology and Japanese Language Learning U of M version:copy

Copy of page: EXIT PAGE

This page exits the survey!

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After doing so, click the "Done" button below and you will be re-directed to the webpage of the Department of Foreign Languages and Literatures at the University of Memphis.

Technology and Japanese Language Learning U of M version:copy

EXIT PAGE:NON COMPLETERS

This page exits the survey!

We appreciate your interest!

Click the "Done" button below and you will be re-directed to the webpage of the Department of Foreign Languages and Literatures at the University of Memphis.

Appendix B

Letter of Request

April 7, 2013

Dear Japanese Students,

I hope everyone's semester is going well. We have one more month until the semester is over, so let's all work hard to finish the year as a success.

As you know, at the university level, many of your professors are working on studies that can help improve the ways in which we learn. I am currently working on a study that looks into how foreign language students are benefited by the use of technology. Part of this research involves input from the people who are actually using technology to learn languages. In order to see how you all are using technology, I need to ask a few questions.

Below you will find a link that will direct you to my survey. This survey should only take about 10 ~ 15 minutes. Completing this survey will both help me in gathering valuable information about the use of technology and will give you opportunities to evaluate the usefulness of some of your own studying methods.

https://www.surveymonkey.com/s/Tech_LearningJapanese

Please print out the final page of this survey, and submit it to your Japanese teachers for extra credit.

Thank you very much for your participation.

どうもありがとうございます。どうぞよろしくお願い致します。

Sincerely,

徳田 淳子

Junko Tokuda

jtokuda@memphis.edu

November 19, 2013

Dear Japanese Students,

I hope everyone's semester is going well. We have two more weeks until the semester is over, so let's all work hard to finish the year as a success.

As you know, at the university level, many of your professors are working on studies that can help improve the ways in which we learn. I am currently working on a study that looks into how foreign language students are benefited by the use of technology. Part of this research involves input from the people who are actually using technology to learn languages. In order to see how you all are using technology, I need to ask a few questions.

Below you will find a link that will direct you to my survey. This survey should only take about 10~15 minutes. Completing this survey will both help me in gathering valuable information about the use of technology and will give you opportunities to evaluate the usefulness of some of your own studying methods.

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Thank you very much for your participation.
どうもありがとうございます。どうぞよろしくお願い致します。

Sincerely,

徳田 淳子

Junko Tokuda
jtokuda@memphis.edu

Appendix C

Institutional Review Board Approval Letter

IRB Approval2503 3/26/13 5:32 PM

Reply Reply All Forward

IRB Approval2503

Jacqueline Reid Tharpe (jreid) on behalf of Institutional Re...

To: Junko Tokuda (jtokuda)

Cc: Satomi I Taylor (sitaylor)

Thursday, March 07, 2013 10:06 AM

Hello,
The University of Memphis Institutional Review Board, FWA00006815, has reviewed and approved your submission in accordance with all applicable statuses and regulations as well as ethical principles.
PI NAME: Junko Tokuda
CO-PI:
PROJECT TITLE: Technology for effective Japanese langugae learning
FACULTY ADVISOR NAME (if applicable): Satomi Taylor
IRB ID: #2503
APPROVAL DATE: 3/7/2013
EXPIRATION DATE:
LEVEL OF REVIEW: Exempt Modification
Please Note: Modifications do not extend the expiration of the original approval
Approval of this project is given with the following obligations:
1. If this IRB approval has an expiration date, an approved renewal must be in effect to continue the project prior to that date. If approval is not obtained, the human consent form(s) and recruiting material(s) are no longer valid and any research activities involving human subjects must stop.
2. When the project is finished or terminated, a completion form must be completed and sent to the board.
3. No change may be made in the approved protocol without prior board approval, whether the approved protocol was reviewed at the Exempt, Exedited or Full Board level.
4. Exempt approval are considered to have no expiration date and no further review is necessary unless the protocol needs modification.
Thank you,
Ronnie Priest, PhD
Institutional Review Board Chair
The University of Memphis.
Note: Review outcomes will be communicated to the email address on file. This email should be considered an official communication from the UM IRB. Consent Forms are no longer being stamped as well. Please contact the IRB at IRB@memphis.edu if a letter on IRB letterhead is required.